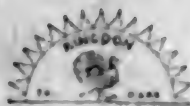


No. 5.

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**STEAM YACHTS,  
LAUNCHES,  
MARINE, ELECTRIC LIGHT,  
AND OTHER MACHINERY.**

**WITH NUMEROUS DESIGNS.**



GREEK ADMIRALTY 30-FT. LIFE-CUTTER. SPEED 11 $\frac{1}{2}$  MILES. AS TYPE NO. 7.

FOURTH EDITION.

**SIMPSON, STRICKLAND & CO., Ltd.,**  
Engineers, Yacht, and Launch Builders,  
DARTMOUTH, SOUTH DEVON; and TEDDINGTON-ON-THAMES.

GRAMS: "ENGINEERS, DARTMOUTH," & "KINGDON, TEDDINGTON."

Private Wire from Kingswear and Dartmouth Post Offices.

J. Roy. Cockburn.



## NOTICES.



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The prices given herein are those ruling at the date of issue of this List, and are subject to alteration without notice.

We build Machinery of standard patterns, *in all sizes*, and this Price List gives the leading types. Estimates will be given for other sizes, or to suit any special purpose, on application.

***The Board of Trade and Lloyds.***—A Board of Trade Certificate for carrying passengers, or a Certificate of Class from Lloyds', can be obtained if required, and if arranged for at the time of ordering. All fees and extra expenses to be paid by customers.

Our prices include delivery F.A.S. or F.O.R. any English Railway Station or Dock. Launches and Craft of suitable size are frequently steamed out to foreign ports, and we will undertake contracts for delivery under special agreement.

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## USUAL TERMS OF PAYMENT.

**NET CASH payment.** *One-third* with order, and the *balance* on delivery for sums under £500. Above this in three or more instalments, or as may be mutually arranged.

**FOREIGN ORDERS** must be accompanied by credit on an approved English house, who will guarantee payment as above.

Prices quoted for special terms of payment on application.

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# SIMPSON, STRICKLAND & Co., Ltd., Dartmouth, South Devon.

## PRICES AND PARTICULARS OF

### Compound Surface Condensing Machinery,

With SIMPSON, STRICKLAND & Co.'s Patent Improved Thornycroft Water Tube Boiler, for a working Pressure of 150 lbs. per square inch, or Kingdon's Vertical Boiler.

ENGINE—													
L.H.P. ...		3	6	11	17	23	30	40	50	60	80	100	130
H.P. Cylinder diam.		1½	2	3	3½	4	4½	5	5½	6	7	8	9
I.P. ..		3	4½	6	7	8	9	10	11	12	14	16	18
Stroke ...		2	2½	3½	4½	5	5½	6	6½	7	8½	10	11
Revolutions per minute		1200	800	550	500	450	425	400	375	350	300	250	225
Approx. space in Boat required for Machinery		ft in	ft in	ft in	ft in	ft in	ft in	ft in	ft in	ft in	ft in	ft in	ft in
		4 0	6 10	7 5	8 0	8 9	9 6	11 9	12 6	14 0	15 0	16 6	18 0
Approx. weight of Engine & Watertube Boiler, cwt.		3	5.25	8.5	10.35	14.5	19.0	27.0	31.5	36.5	49.5	63.0	81.0
PRICES:—													
Engine with Outside Condenser, Pumps and Stern Gear ... £		60	90	98	135	152	168	201	250	278	323	366	465
Boiler with Mountings £		40	60	77	100	133	160	198	222	258	314	379	461
TOTAL, including all Pipes and Fittings £		100	150	175	244	285	328	399	472	536	637	745	926
Spare Propeller of Gun Metal ... £		1 10	2	2 10	3 10	5	6	7 10					

PRICES OF LARGER SIZES ON APPLICATION

The two smallest engines are of our closed in type.

The 6 L.H.P. Engine by working at 200 lbs. can develop 8 L.H.P.

For inside Condenser add 12 per cent.

For Brass Funnel and Casing to Boiler add 7½ per cent.

NOTE.—With Engines up to 23 L.H.P. an Auxiliary Hand-feed Pump is fitted; all sizes above with a Blake & Knowles, or Worthington Steam Donkey.

For all sizes up to 30 L.H.P., Boilers fire forward; all larger sizes, fire aft.

If it is preferred to fire the smaller sizes aft, the length of machinery space can be reduced by about 10 per cent.

The Engine and Boiler are usually in one compartment for all sizes.

Prices are subject to alteration without notice.



# SIMPSON, STRICKLAND & Co., Ltd., Dartmouth.

## PRICES AND PARTICULARS OF

### High-speed Triple Expansion Surface Condensing Machinery,

With SIMPSON, STRICKLAND & Co.'s Patent Improved Thornycroft Water Tube Boiler, for working Pressure of 250 lbs. per square inch.

ENGINE—																																	
H.P. ... ..		18	26	34	48	62	76	90	100	117	135	152	190	235	290	345	482																
H.P. Cylinder, dia. ...		2½	3	3½	3½	4½	4½	5½	5½	6	6½	6½	7	8	9	10	12																
M.P. .. ..		4	4½	5½	6	6½	7½	8	8½	9½	9½	10½	12	13½	14½	16	18½																
L.P. .. ..		6	7	8	9	10	11	12	13	14	15	16	18	20	22	24	28																
Stroke ... ..		3	3½	4	4½	5	5½	6	6½	7	7½	8	9	10	11	12	14																
Revolutions per minute		800	750	700	650	600	550	500	460	420	400	375	330	300	275	250	215																
Approximate space in Boat required for machinery ... ..		7	6	8	10	10	0	11	0	10	6	11	6	12	9	13	6	14	3	15	2	16	6	21	0	23	6	24	3	25	0	27	0
Approximate Weight of Engine and Boiler .. .. cwt.		7-25	10-25	13-25	18-75	21-5	31	38	43	50	58	64	81	100	122	146	204																
PRICES:—																																	
Engine, with Outside Condenser, Pumps, and Stern Gear £		170	205	253	308	366	413	482	527	590	648	706	852					Prices of these and Larger Sizes on Application.															
Boiler with Mountings ... £		90	107	130	156	192	218	252	276	307	339	370	456																				
TOTAL, including all Pipes, & Fittings £		260	312	383	464	558	631	734	803	897	987	1076	1308																				
Spare propeller of Gun Metal... £		2	10	4	5	6	7	8	9	10	11	13	15	17																			

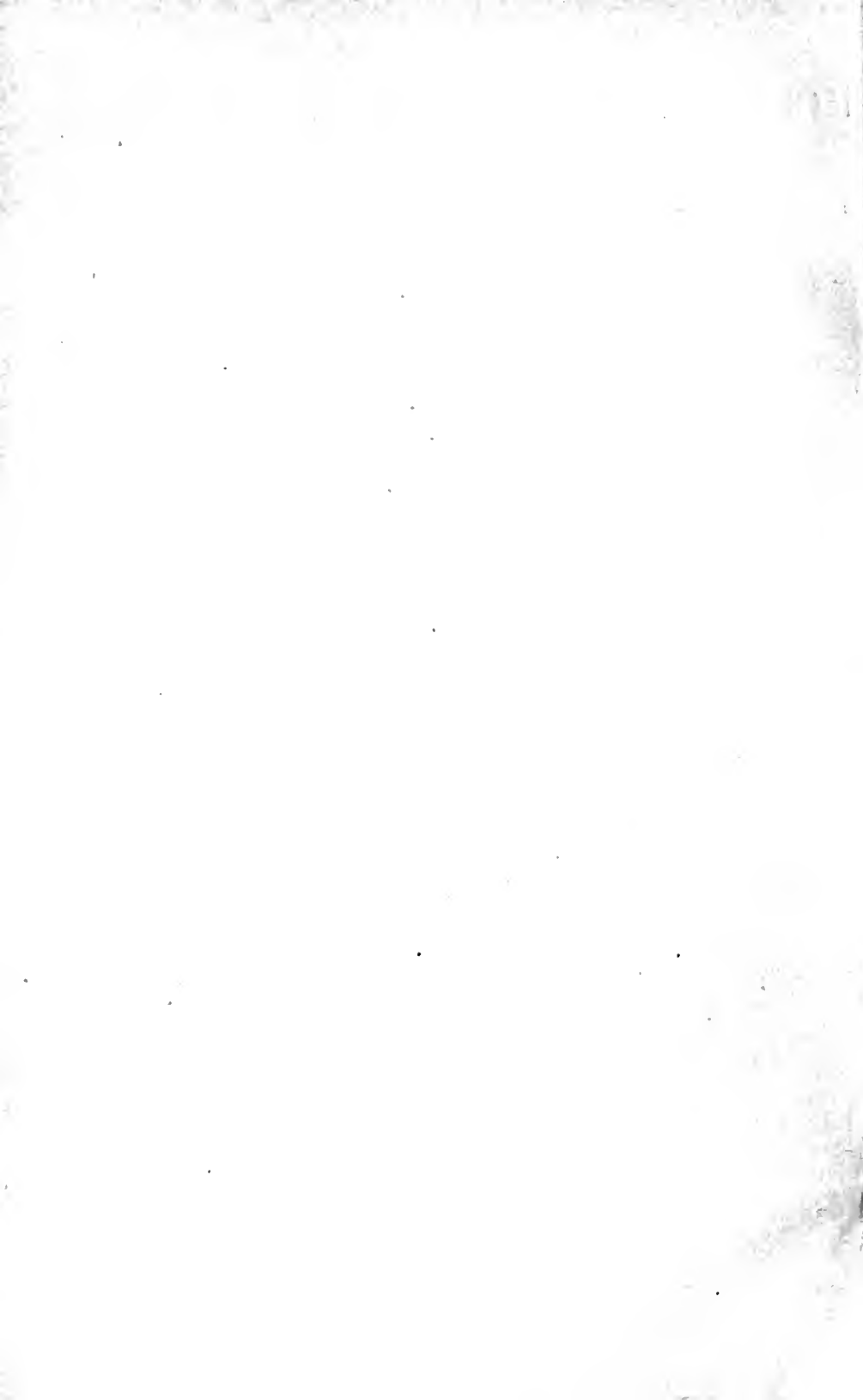
For inside Condensers add 10 per Cent.

For Brass Funnel and Casing to Boiler add 5 per Cent.

NOTE.—Engines of two smallest sizes are fitted with Auxiliary Hand feed Pump. All sizes above with a Blake and Knowles' or Worthington Steam Donkey. All sizes above 62 I.H.P. have Main Feed and Air Pumps, driven either by Reducing Gear, or an Independent Engine. For all sizes up to 48 I.H.P. boilers fire forward; all larger sizes fire aft. If it is preferred to fire the small sizes aft the length of the machinery space can be reduced by about 10 per cent.

The 190 I.H.P. machinery and larger sizes usually have the Engine and Boiler in separate compartments.

Prices are subject to alteration without notice.





# SIMPSON, STRICKLAND & Co., LTD., DARTMOUTH.

PRICES AND PARTICULARS OF "KINGDON"

## Quadruple Expansion Surface Condensing Machinery,

With SIMPSON, STRICKLAND & Co.'s Patent Improved Thornycroft Water Tube Boiler, for a working Pressure of 250 lbs. per square inch.

ENGINE—												
I.H.P. ... ..	...	10	14	20	28	38	47	70	100	128	165	200
Formerly known as	...	1A	A	AB	B	BD	D	F	H	J	JL	L
H.P. Cylinder dia.	...	2	2½	3	3½	3½	4½	5	6	7	7½	8½
No. 2 .. ..	...	2½	3½	4	4½	5	5½	7	8	9	10	11
No. 3 .. ..	...	3½	4½	5½	6	6½	7½	9	10½	12	13½	15
L.P. .. ..	...	5	6	7	8	9	10	12	14	16	18	20
Stroke ... ..	...	3	3½	4	4½	5	5½	6½	8½	10	11	11
Revolutions per minute	...	600	550	500	450	425	400	350	300	270	240	220
Approx. space in Boat required for Machinery	...	7 0	7 3	7 8	8 3	9 0	9 9	12 6	14 0	15 0	16 6	18 0
Approx. weight of Engine and Boiler... .. cwt.	...	5·0	8·5	9·8	12·3	14·4	21·1	34·0	54·0	64·0	93·0	113·0
PRICES:—												
Engine with Outside Condenser, Pumps and Stern Gear ... .. £	...	100	140	161	199	243	296	354	472	595	714	850
Boiler with Mountings £	...	60	70	100	115	145	156	210	276	325	396	450
TOTAL, including all Pipes and Fittings £	...	160	210	261	314	388	452	564	748	920	1110	1300
Spare Propeller of Gun Metal ... .. £	...	2	2	2 10	4	5	6	9	12	17	22	27

PRICES OF LARGER SIZES ON APPLICATION.

For inside Condenser add 10 per cent.

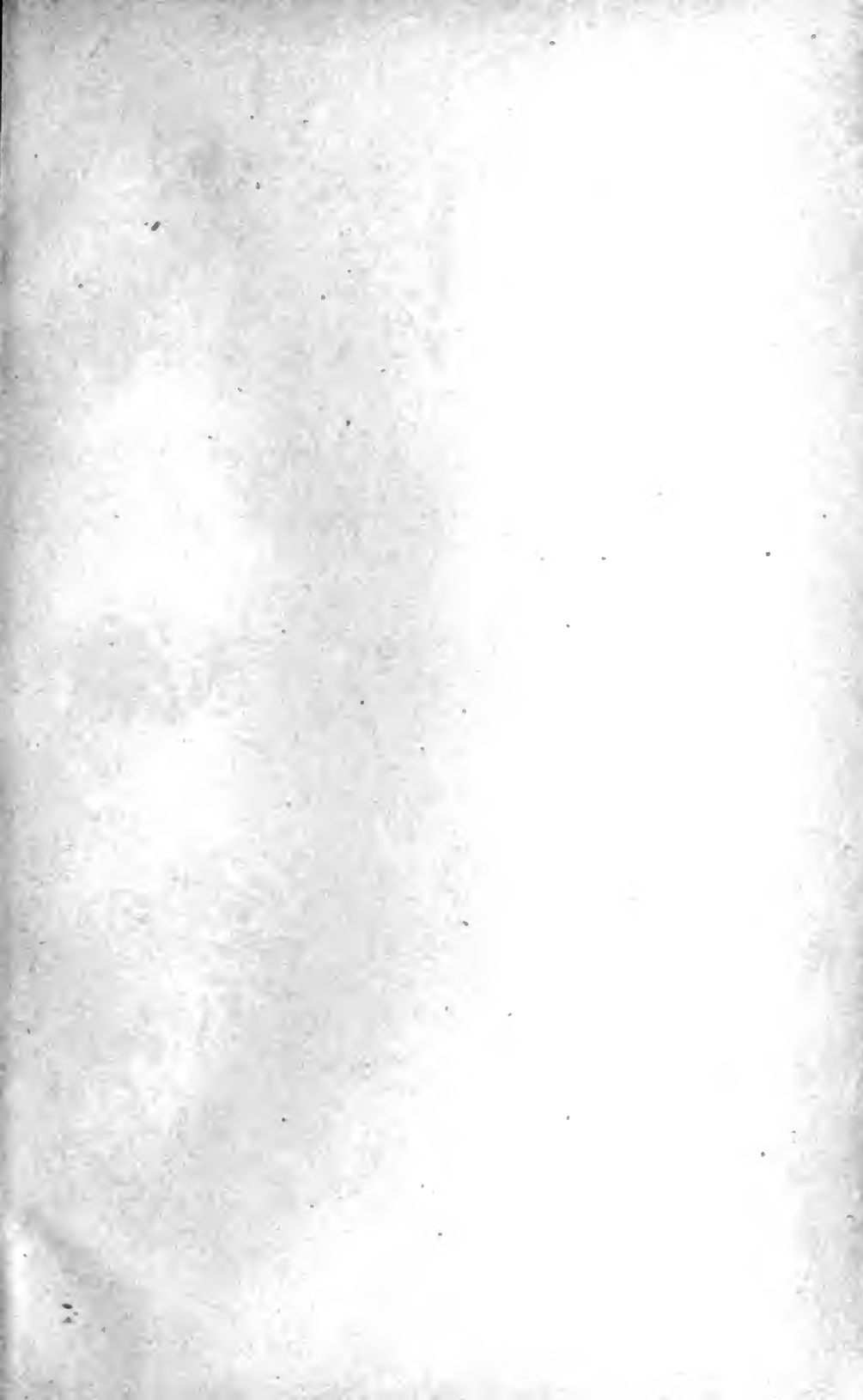
For Brass Funnel and Casing to Boiler add 5 per Cent.

NOTE.—With Engines up to 28 I.H.P. an Auxiliary Hand-feed Pump is fitted; all sizes above with a Blake & Knowles, or Worthington Steam Donkey. For all sizes up to 47 I.H.P., Boilers fire forward; all larger sizes, fire aft. If it is preferred to fire the smaller sizes aft, the length of machinery space can be reduced by about 10 per Cent. The Engine and Boiler are usually in one compartment for all sizes.

Prices are subject to alteration without notice.

1901.







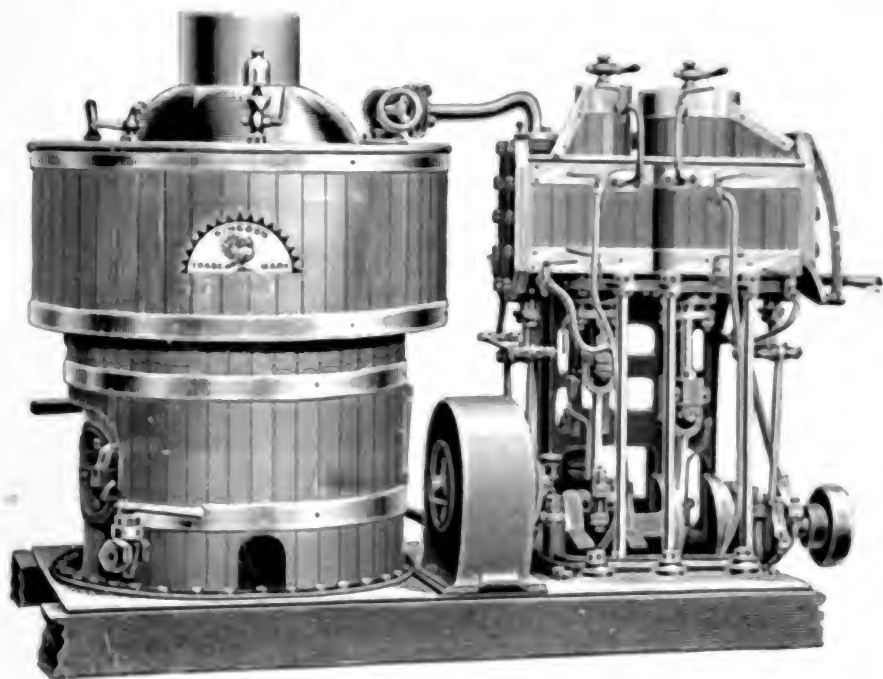
# MACHINERY

FOR

STEAM LAUNCHES,

ALSO FOR

Auxiliary Engines, Electric Lighting, &c., &c.



View showing a set of Launch Machinery, comprising the  
"Kingdon" Patent Quadruple Expansion Engine, and "Kingdon" Boiler.  
*(Engraved from a Photo)*

SIMPSON, STRICKLAND & CO., Ltd.,

Engineers, Yacht and Launch Builders,

DARTMOUTH, SOUTH DEVON, and TEDDINGTON-ON-THAMES.





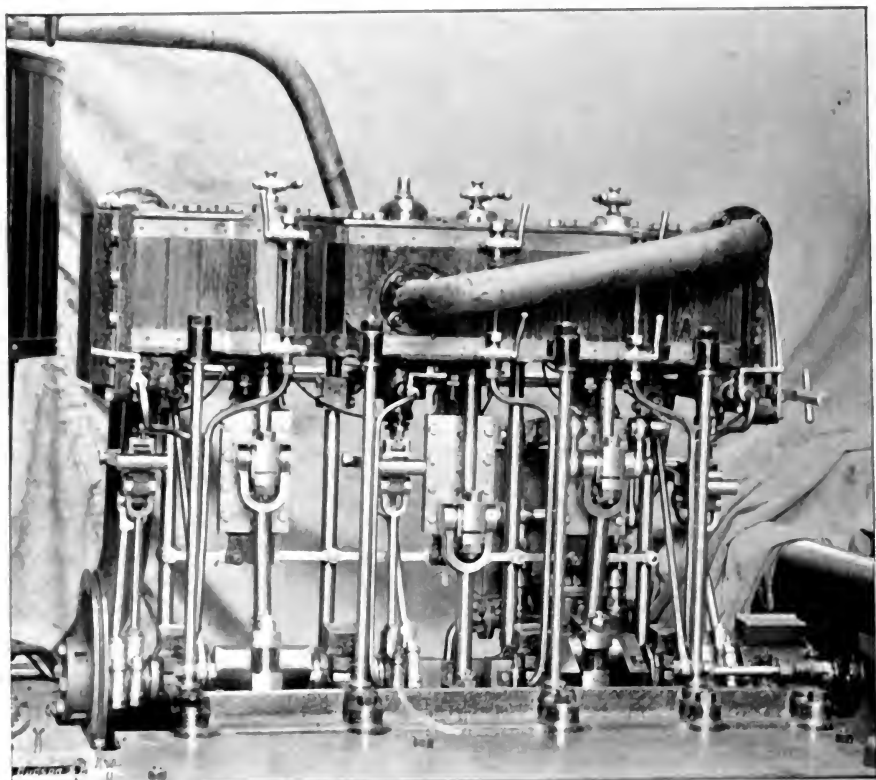
38ft. x 7ft. LAUNCH. "LORNA DOONE"

## CHAPTER I.

### DESCRIPTION OF THE VARIOUS TYPES OF MACHINERY MANUFACTURED BY U.S.

**Triple Expansion Type.**—This is in general design so well known that we need not describe it, and is illustrated in the above photo. We have paid great attention to the design in detail of these engines, and they will be found better suited to high class yacht work than any other in the market. One great feature is the size of the bearing surfaces, these having been made practically as large as could be got in. This enables the engines to be run at high speeds, without any undue wear or tear, and avoids all trouble from heating of the bearings and enables it to be run for long periods without repair. It also minimises the noise and vibration as well as the attention required in adjustments. The pumps are driven from the L.P. crosshead by rocking levers, and are fitted with metal and vulcanized fibre valves. The H.P. cylinder is fitted with a piston valve, except in the smaller sizes, and the I.C. and L.P.C. with slide valves, all of which are easily accessible for examination.

**General Description of the "Kingdon" Quadruple Expansion Surface Condensing Machinery.**—This consists of two pairs of Tandem Cylinders arranged on two cranks, the high-pressure and First Intermediate in the forward crank, and the Second Intermediate and low-pressure on the after one. The cylinders on each crank have the steam distributed to them through a single slide valve, driven by the ordinary link motion. The cylinders are so arranged that there is only one piston-rod gland to each pair of cylinders, the piston-rod passing through a plain bush between the cylinders and having grooves cut in it to prevent leakage of steam. This



TRIPLE EXPANSION ENGINE.

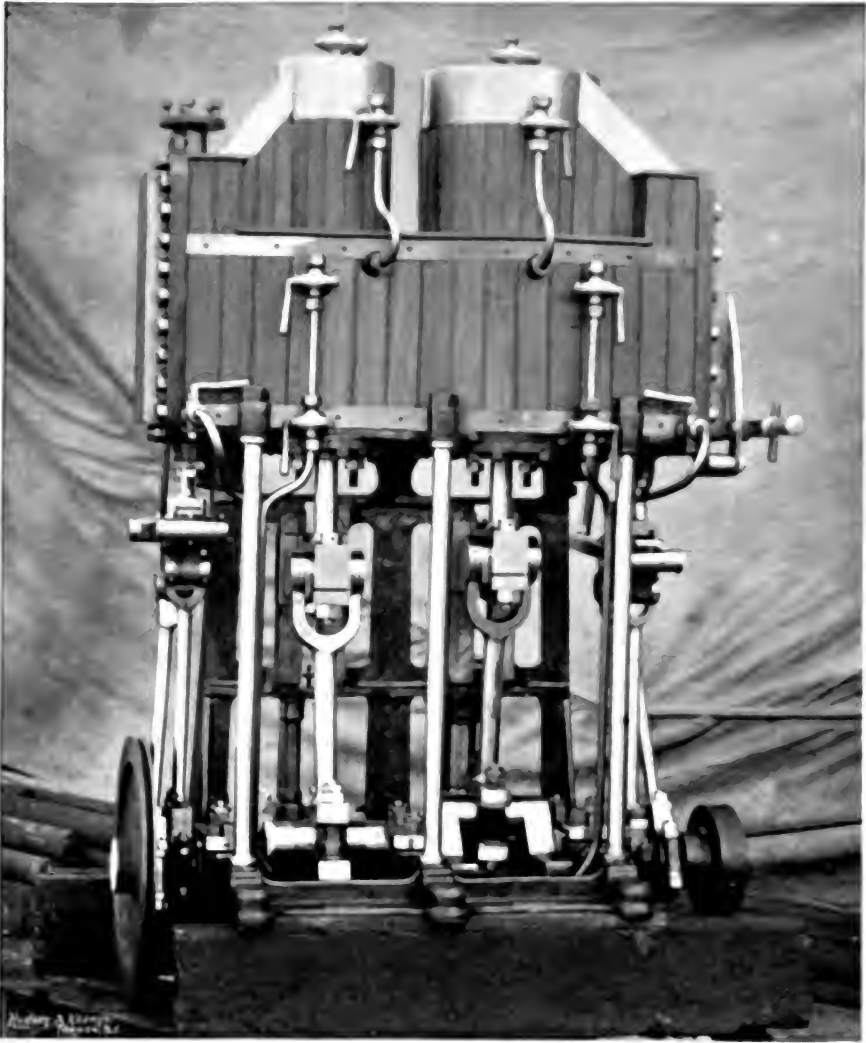
plan has been found to give no trouble, and to make a perfectly tight joint when the Engine is running. It will thus be seen that our Quadruple type has no more moving or working parts to attend to than the ordinary Compound type, and therefore is quite equally simple to work, while it retains the economy of the Quadruple type. Another advantage is that no piston-rod gland is exposed to the full boiler pressure. This type of Engine has been very successful in all the sizes in which it is manufactured, in fact it is not too much to say that we have built more Quadruple Engines than all the other builders in the world put together, though of course ours are relatively of very small size.

**The Feed and Air Pumps.**—These form an important feature of the “Kingdon” Machinery.

*The Feed and Air Pumps* are fitted with metal valves, are of the most solid and durable character, and are not liable to get out of order. Amongst other advantages is the important consideration that, being self-acting, the feed-pump cannot stop working while the engine is running without attracting attention.

The bottom valve of the feed-pump is formed with a long spindle, which is made a working fit in a hole bored in the pump-plunger, which

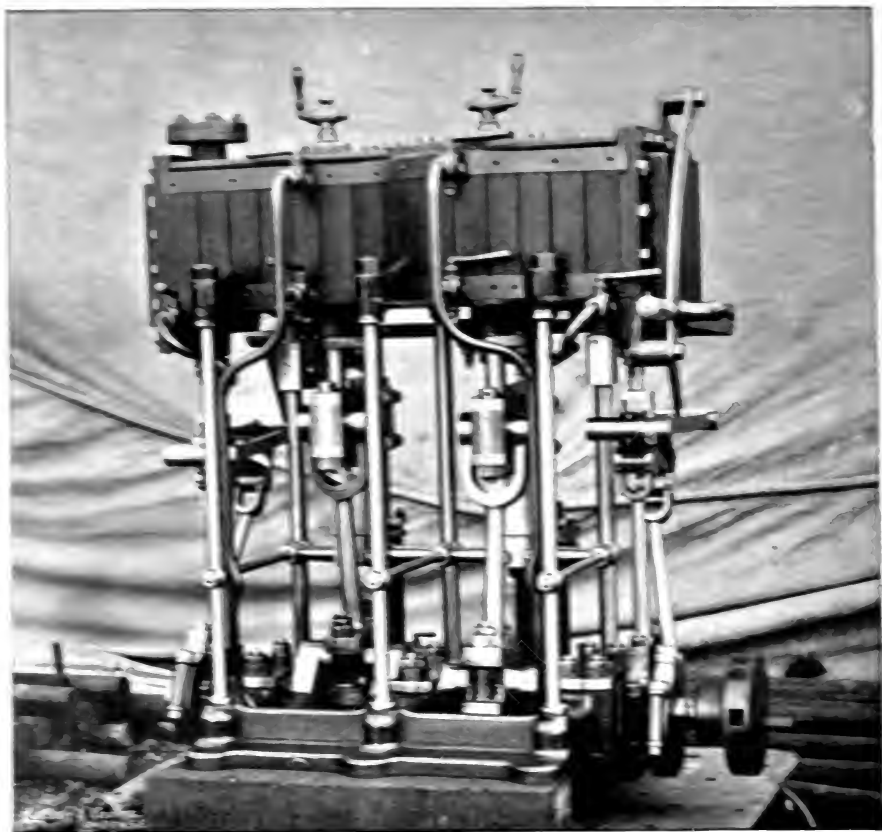




**KINGDON PATENT QUADRUPLE ENGINES.**

spindle, becoming coated with grease from the condensed water, causes sufficient friction to lift the valve at the commencement of the up stroke of the plunger, keeps it open during the stroke, thereby leaving a free passage for the water, and closes it at the commencement of the down stroke, compelling the water in the pump barrel to pass through the top valve.

Both pumps are driven direct from the cross-head of the Engine, so that all levers and weight-shafts are done away with (except in machinery for the larger Launches or where an independent pumping Engine is found desirable), and will work perfectly at 400 or 500



**TWO CYLINDER COMPOUND ENGINES.**

revolutions a minute. There is consequently no necessity to employ gearing or other means to reduce the speed of the pump, as is often done in torpedo and quick-running Launches. They are fixed in the framing of the Engine so that there are no pipes projecting in the boat.

Large numbers of these Pumps are now running in all parts of the world, and their great superiority over all others, for quick-running Engines using condensed water, has been amply demonstrated by nearly 15 years' practical use.

**The Condenser** is formed of a solid drawn copper tube of "D" section, placed outside the boat, the ends of which are fastened into suitable gun-metal castings passing through the skin, and is so made as to be stronger and less liable to injury than any other part of the boat. It is connected at one end with the exhaust pipe, and at the other end with the air-pump suction. No difficulty is found in maintaining a vacuum of 25 or more inches.

**Two Crank Ordinary Compound.**—Where the ordinary Compound Engine with two cylinders and two cranks is preferred, the type shown in

the photograph will be found superior to any in the market in design, workmanship, and materials. It is generally similar to those supplied to the Admiralty, and has the valve chests placed outside the cylinders so as to be accessible, while the pumps are driven direct off the cross-heads, and are of a similar type to those in the Quadruplex. In every respect they are designed to secure the maximum efficiency and durability, while the workmanship and materials are of the best.

**Non-condensing Machinery.**—All the engines described above are made to condense; but where fresh water is to be had non-condensing Machinery can be used, and for this we have introduced several types. Where cost is of extreme importance the simple high pressure type is most suitable, and we are manufacturing this both single and double cylinder, and on cast-iron and steel frames. The single engines are, of course, the cheapest and simplest, and are just as satisfactory in working, with the exception of not being so handy in reversing. As to the cast iron or steel frames the former is the cheapest but somewhat the heaviest. Where weight is of extreme importance, as on high speed boats, the steel column engine is to be preferred, but for other purposes we consider those built with cast-iron frames just as satisfactory. The boilers we consider most suitable for the non-condensing machinery are the loco type.

**Choice of Type of Engine.**—For all general yacht work the most suitable type is the Triple Expansion. This is the steadiest running of all those described, in consequence of its having three cranks, and it is for this reason much the most suited for high-speed, as there is little or no vibration from it when run fast. It also provides room for very large wearing surfaces, which adds to the durability. It is very economical, and this, besides saving boiler space, enables long runs to be made without coaling. In short, the reasons which have brought it into general use in the larger sizes also apply to the small. Its only disadvantage is that it takes up a considerable space in the boat. This is not of great importance in new boats as a rule, as the space can be provided for, but where it is preferred to have a two crank engine, the quadruple or compound may be used. Where fresh water only is run in, and the runs are not long or fuel of any great importance, the simple non-condensing engine will be found satisfactory and very cheap in first cost. It is, for instance, very suitable for Thames work, as the runs are usually only from lock to lock, and no great speed is required except for short runs. It has the advantage that it is the most perfect engine in reversing and starting that there is, which is a matter of some importance when constantly going in and out of locks.

It will be easily understood that the first mentioned engines are the most economical, and that, in fact, they are so about in order mentioned. The importance of this depends on circumstances, and in considering these it must be remembered that though the cost of fuel in a launch is usually so small as to be hardly worth considering, the fuel economy adds greatly to the convenience of a launch and even more to that of a yacht. This shows itself in many ways, as in the greater distance that can be run without taking in coal, smaller space taken up by boiler and bunkers, less dirt from the coal, etc.

**Workmanship and Materials.**—All our machinery is constructed of the very best Materials and Workmanship, and we would here point out that we do not go in for cheap quality work. We believe the best work

to be the most satisfactory for all purposes though of slightly greater first cost. We use the best materials we can get, and we put the best workmanship into them that it is possible to obtain. We do not profess to build engines on the interchangeable system, as we do not consider that any engines can be so perfectly fitted if built in this way as if each engine is really carefully fitted up by hand. All the forgings of our engines are made of best quality Siemen's steel, and they are all designed with substantial working parts and large bearing surfaces. The bearings are of special alloy gun-metal, or in high speed machinery white antifriction metal. These are the best quality of bearing metals that can be obtained, but we shall be pleased to supply any other special bearing metals in engines if desired by customers. The pumps are entirely gun-metal, pipes copper, propellers and propeller shafts Bull's metal, stern tubes gun-metal, boiler shells best quality Siemen's steel, and boiler tubes brass in the small sizes and iron in the larger, for shell boilers. For water tube boilers we only employ seamless steel tubes for all sizes, and these are galvanized; copper tubes, though cheaper to buy and work, have been proved by Admiralty and other experience to be unreliable and dangerous. We shall be pleased to build any type of machinery to Lloyd's, Board of Trade, or any other special survey if required, purchaser paying expenses.

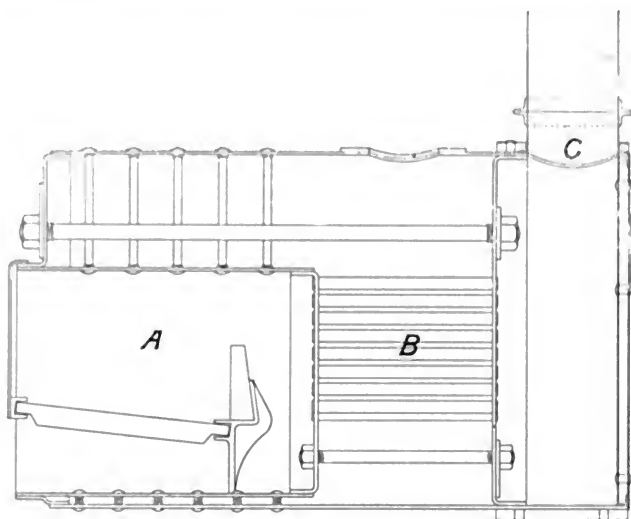


*Launch 27' x 5'8" x 2'8" Speed 11 miles.*

## CHAPTER II.

### WATER TUBE AND OTHER BOILERS.

**General Description of Different Types of Boilers.**—The principal types of boilers in use for launch purposes are, taking them in order of their age, 1st the horizontal, 2nd the vertical, 3rd the water tube. The horizontal type consists of a shell, having a furnace at one end and a funnel at the other with tubes connecting them. The most usual arrangement is shown in block I; A being the furnace, B the tubes and C the funnel. This type of boiler, though formerly a great favourite, has now to a great extent been superseded by more modern ones on account of the fact that it is very bulky and heavy for its power, and is in consequence only admissible where speed is no great object. It is, however, preferred by some as being well suited to use excessively bad water in the hands of unskilled men. A boiler of somewhat similar design, but with the tubes returning over the furnace, is largely used for marine work in the larger sizes. The 2nd type of boiler, viz., vertical, has been principally successful in the form of our "Kingdon's" patent, of which we give an illustration. A is the furnace, B the tubes, C the funnel; the gases passing direct up through the tubes. There is an internal smokebox (D) arranged so that the whole of the tubes are below the water line. This boiler has the great advantage that it has a very large grate area in proportion to the space it stands on, and it consequently makes steam well with natural or nearly natural draft. It does not require space to be left for sweeping tubes. In consequence of the large steam space it does not prime, and from the arrangement of the mud holes it can be very thoroughly cleaned inside, the lower tubeplate being accessible in every direction. The 3rd type has only recently come into general use, and is distinguished from the others by having the water contained in the tubes instead of the flame passing through them and the water being outside. It has been for some time used with great success for torpedo and other high speed work. In order to get a boiler suitable to launch work, we took the Thornycroft as a basis but entirely remodelled it as shown in the enclosed woodcut of our Strickland patent. This consists of a steam drum (D) and a water drum (E E), communicating with each other by steam generating tubes (F) and downtake tubes (G), the furnace and funnel being A and C as before. When in action steam is formed in the tubes (F) and passes up to the top drum, carrying with it a strong current of water. This returns to the bottom drums by the



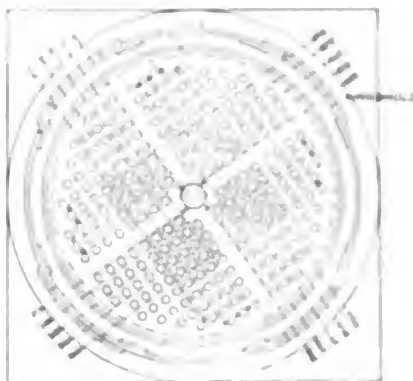
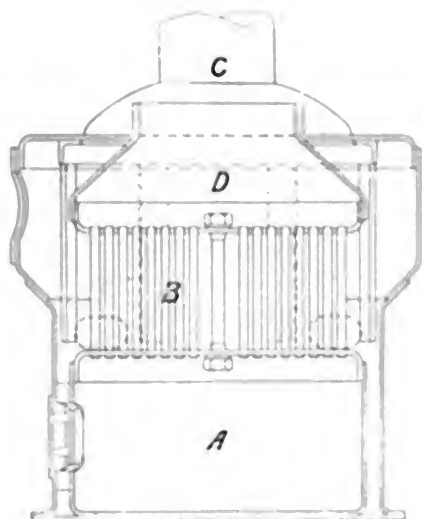
**HORIZONTAL BOILER.**

downtake tubes (G). This circulation is the most important thing in a water tube boiler, as it will be easily seen, that, as all water contains some slight amount of solid matter, if no means were taken to prevent its deposit in the tubes it would be only a question of a short time till the whole of the tubes were blocked up and burnt out. With tubes arranged as shown, we find that in practice it is impossible for deposit to take place in the tubes, as it is all washed out and deposits in the bottom drums. This we have proved by experiment, and also by examining the circulation in a model with glass ends, which we shall be pleased to show anyone interested. A special feature of our boilers is that any one tube can be removed and a new one put in without disturbing any other one. This is provided for by spacing the tubes in lines and a little more than their own distance apart. This arrangement also gives a boiler which steams very well with natural draft and enables all the tube joints to be seen from the furnace. The great advantages of the water tube boiler, are, 1st that it is very powerful for the weight and space occupied, and consequently there is no difficulty in getting greater speeds than with other types, without forcing excessively; at the same time a water tube boiler can be run under the strongest forced draft, if necessary, without its being possible to make the tubes leak, however careless the firing may be. Another great advantage of this type is that it will steam well with very inferior fuel. This is an advantage that will be much appreciated by those who have difficulty in obtaining good coal; it will also run an unlimited time without having the tubes swept, which is a great saving in dirt and trouble. Wood fuel is easily burnt in these boilers, as it is easy to arrange for a furnace of great height.

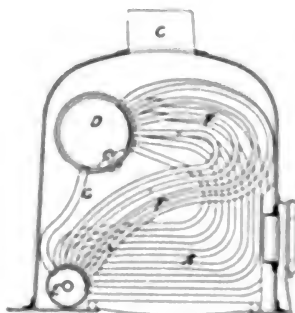
Taking all the above points into account we consider that the water tube is the most generally satisfactory, providing it is properly made. It is, however, to be observed that there are some on the market in which the arrangements for circulation are so defective, that they can only be run

**SIMPSON, STRICKLAND & Co., Ltd., Dartmouth & Teddington.**

with the aid of elaborate arrangements to provide distilled water. We do not, of course, claim that ours is the only one which will run well, but we claim that it is the one which will stand more rough usage than any other in the market. Of the shell boilers, we think the "Kingdon" the best for all ordinary purposes; while the horizontal is well suited for work abroad, in cases where no great speed is required, and the boiler has to be placed in the hands of persons used only to this type.



**KINGDON VERTICAL BOILER.**



**STRICKLAND WATER TUBE BOILER.**



### CHAPTER III.

#### BOILER PRESSURES.

WITH regard to the best working pressure to use for launch machinery, there is and has been a very great diversity of opinion. The general opinion of the best engineering talent in the country appears, however, to be that about 200 lbs. is the best pressure for ordinary marine work; and this is found to be satisfactory for launch work as well. For a long time our standard working pressure for quadruples has been 175 lbs., and we have found this very satisfactory. With water tube boilers it is, however, profitable to use slightly more than this, and we are accordingly making all our standard water tube boilers for 200 lbs., and the new designs for the quadruple and triple engines are suitable for this. For compound engines we do not see any advantage, except for very special purposes, in exceeding 150 lbs. It is perfectly true that by going to a higher pressure more work can be got out of a given sized engine, but it is difficult to put in sufficient bearing surfaces to enable it to be done without great wear and tear, while there is certainly no gain in economy.

There is an erroneous idea that high pressures are more dangerous than low pressures. This as a fact is not so, as a boiler if properly designed, has a bursting strain of from four to six or more times its working pressure, and there is just the same margin in a boiler designed for 200 lbs. as one for 100 lbs. On the other hand we think it a mistake to go too far in this direction, not because of risk, but because the use of pressures higher than are usual is liable to lead to small troubles with joints, stuffing boxes, &c., each of which may not be much consequence in itself, but all of which put together make the difference between satisfactory working and otherwise. This can be seen in the past, as when a few



individuals tried pressures of 150 and 200 lbs. years ago they did not succeed, although such pressures are in common use now. So no doubt in the future pressures of 250 and 300 lbs. will be general. In any case any pressure over 200 lbs. will require quadruple and quintuple expansion engines for any important gain to be secured.

For special purposes, no doubt, special pressures should be used. Where, for instance, machinery has to be placed in the hands of totally unskilled men, it may sometimes be desirable not to depart much from what they have been used to, and we shall be pleased to quote for machinery to suit. Where there are special reasons for it, we shall also be pleased to quote for specially high pressures.

**Relation of Pressure to Speed.**—An idea sometimes exists that the speed of a boat is in someway proportionate to the pressure. We have heard people remark, on seeing the photo of a high speed boat, "What a tremendous pressure she must have." Now, as a matter of practice, the pressure a boat works at has very little to do with the speed at all. The principal advantage of using a reasonably high pressure is economy; but we believe that very little gain in speed is to be obtained by raising pressures, and we shall be pleased to quote for high speed or other boats to suit customers' requirements, to work at any pressure from 50 lbs. to 400 lbs.

In connection with this question of the relation of pressure to speed it is worth noting that one of the fastest vessels afloat, viz., the Irish Mail boat, "Ireland," works at 40lbs. pressure only, while she has a speed of 21 knots. On the other hand, for some years the average working pressure of the ordinary 8 knot cargo boats has been 160 lbs. to 180 lbs.



**TUG, 60ft. x 11ft., FOR BRAZILIAN GOVERNMENT**

## CHAPTER IV.

### GENERAL NOTES AS TO CHOICE OF TYPE OF LAUNCH AND MACHINERY.

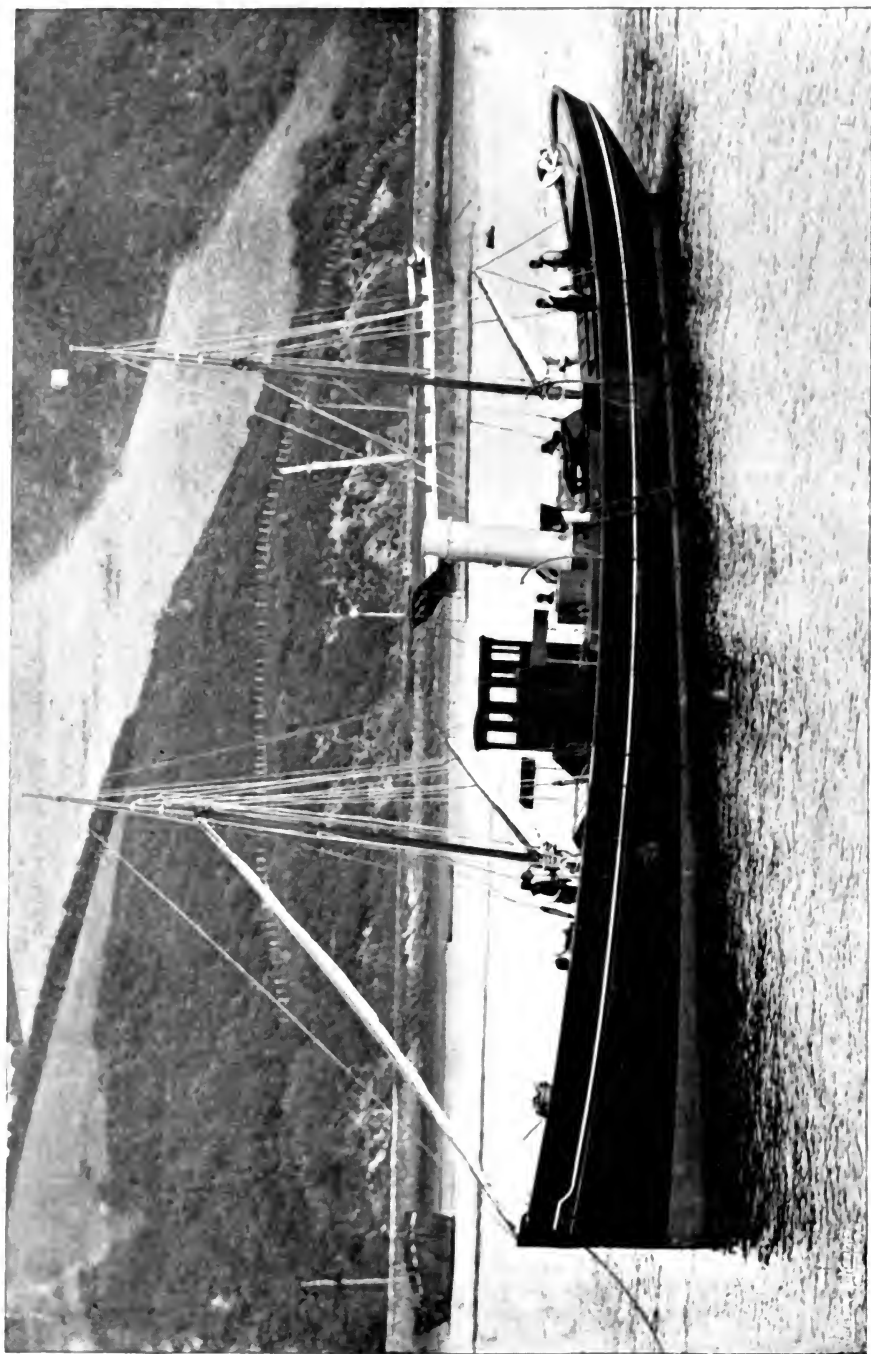
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AS intending purchasers may be glad to know what can be done in a Launch, we think that a few words on this point will be of use. In the next chapter we give a few designs of boats from which a good deal may be gathered, but these are only intended to be hints to buyers, and we should in all cases be glad to be allowed to quote to requirements. We have in our office about a thousand designs of various boats, and shall always be pleased to get out new ones if none of these are exactly suitable. It will, perhaps, be of use to take first what we may call the ordinary types of Launch, *i.e.*, the ones most generally used. Nos. 3, 8, 9, 30, 33, 34, 43, may be taken as different sizes of these, and no doubt most people will be very familiar with them. In selecting the size most suitable there are a few points to consider, however. Beginning with the smaller sizes up to 30 ft., they are used extensively for carrying on board larger Yachts. In these the limit is usually the length that can be swung in davits. Up to 30 ft. the accommodation is generally placed entirely in the stern and the engines amidships. In boats of 27 ft. and upwards a few persons can be very well carried in the bows, but not very many. Now most people's experience is that the forward end of a boat is much the most comfortable, and therefore when a boat is not required to swing in davits it is more convenient to make her, say, 35 ft. long or over, and in this case there is plenty of room in the forward well for upwards of half a-dozen people. Other people, again, require some sort of cabin, and in this case the most convenient arrangement is to have an open well forward and cabin just aft of the machinery, and a well again aft. The forward well is used in fine weather, and the after well in rough weather. The cabin is usually made long enough to sleep in, and a lavatory provided as well, and in this case the accommodation cannot satisfactorily be got into a boat less than 40 ft. long, and it is better to have the boat longer. If desired the forward well can be done away with and a forecastle put instead, and if the boat is made 50 ft. long or upwards both a forward well and a small forecastle can be provided. The above are, of course, not the absolute limits, but are the sizes in general use. Above 50 ft. Launches are usually built with the engines covered in, and they can be so built down to 40 ft. or even less if required. Our own idea is that considering how very small the engine rooms of boats below 50 ft. are it is best to leave

them open, but this depends on circumstances. Above 50 ft. a boat can be provided with decked engine room, fore-castle, sleeping cabin, and saloon; and, in fact, answers all the purposes of a small steam yacht while having the light draft and general handiness of a Launch. The drafts of Launches are usually about as follows: 27 ft., 18"; 40 ft., 2' 3"; 50 ft., 3' 0"; and 60 ft., 4' 0". These however can be greatly modified if required, and in most cases a boat can be taken up rivers and canals of much less than the above drafts by trimming by the head, and if necessary bumping over shallows. In most cases where the owner is often on board and steers himself, one hand or one hand and a boy will be found sufficient for all Launches up to 50 ft. if the engine-room is open. Of course, if the engines are decked in, two hands are absolutely necessary. For purely river work it is desirable to build Launches with sharper ends and considerably less sheer than for sea work, for instance, the Launches shown in Nos. 27 and 28.

**Materials.**—The most usual materials for building Launches are Teak, Mahogany, Pine, Cedar, and Steel. There are many other materials that have been used for special purposes such as Phosphor Bronze, Delta Metal, Aluminium, and a great many different kinds of timber, and for special purposes we shall be pleased to quote for any material required. For ordinary requirements we are, however, of opinion that teak or mahogany are the best. They will stand the sun well without shrinking or warping, are strong and durable, and look well when varnished. When first cost is of importance pine is rather cheaper, and if the Launch is to be painted and used in England it is very satisfactory. It does not, however, look well when varnished, as, being soft, it scratches easily. Steel has many advantages for some purposes, but in our opinion is not so generally satisfactory as wood. It is more expensive, does not look so well, wants a great deal of looking after to keep from rusting, and is not nearly so easy as wood to repair. The tendency to corrode can, of course, be cured by galvanizing, but this adds to the expense. It has, however, the great advantage in some countries of not being attacked by insects. We are, however, using steel angles (galvanized) for stiffening our wooden boats, and we think that this mode of construction is superior to using nothing but either wood or steel.

**Speed.**—No doubt, after comfort, the most important thing in a Steam Launch is her speed. The object of a Launch is usually to get from one place to another, and other things being equal the one which will take one furthest in a given time is the most useful. There is a great deal of misconception as to launch reported speeds, in most cases they are grossly exaggerated, and we have quite come to the conclusion that no speeds are worth discussing except those taken over a measured mile, logged off by some competent authority, and taken with a stop watch. We are frequently assured that Launches of our build have done speeds which we know to be impossible, and which, as a matter of fact, are due to inaccurate timing and inaccurate measurement of distance. Should owners of Launches either of our own or other makers wish to try their speed under the same conditions as we try ours, there is a measured half-mile in the harbour and a measured knot outside the harbour at Dartmouth, both laid off by the Admiralty, where they are very welcome to do so. We think under these circumstances, the speeds that many boats are said to go will not be obtained. In connection with this we may mention that the Steam Launch



races, open to all comers, under 30 ft. length, held at Dartmouth Regatta 1884, 1885, 1886, 1887, 1888, 1889, and 1890,\* were won by boats of our build, and in none of these did the speed rise above 8 knots per hour. Since then, of course, speeds have increased somewhat, and for special purposes we are prepared to guarantee considerably higher speeds than this. We have, however, always considered it much more important to obtain a good average on a long run than a very high speed on a short trial over just a mile run, and wherever speeds are mentioned in this catalogue it must be understood that they are speeds which can be maintained over several hours run and not just for a short sprint. In all launches of every kind by far the most important factor of speed is *length*, and the next most important is *lightness*. Many people get hold of a very heavy short boat, or ask us to build one, under the impression that they can get a high speed out of her if only big enough engines are put in, whereas to make a short heavy boat go at a really high speed is absolutely impossible. The next point about speed is, of course, the power placed in the boat, and this naturally resolves itself into *cost* and *coal consumption*. This also has a great bearing on the type of machinery employed. For instance, taking the "Kingdon" Quadruple Machinery as usually worked with slightly assisted draught the following are about the maximum speeds which can be obtained in various length boats of the ordinary type: 20 ft., 8 miles; 30 ft., 10 miles; 40 ft., 11½ miles; 50 ft., 13 miles; 60 ft., 14½ miles; 80 ft., 16 miles. This is for boats of ordinary construction and weight; somewhat higher speeds could be got from very light boats, and on the other hand, for many purposes where high speeds would not be required, smaller machinery might be used for economy. Should higher speeds than the above be required, it is desirable to use a water tube or locomotive boiler, and a stronger draught; and it is also necessary to sacrifice some of the economy of the engines in order to get greater power, and, therefore, either compound or triple engines will usually be used. In this case very much higher speeds can be obtained; but, of course, the coal consumption rapidly increases. At present, the maximum speeds that we should be prepared to guarantee in boats of fairly ordinary construction and stock machinery, is about as follows:—20 ft., 12 miles; 30 ft., 15 miles; 40 ft., 18 miles; 50 ft., 20 miles; 60 ft., 22 miles; 80 ft., 24 miles; 100 ft., 26 miles. Possibly higher speeds than these may be obtained in the future, but we think these will be amply sufficient for most people. If, however, anyone wants a Launch for pure speed, regardless of every consideration whatever, considerably more may be got, and we shall be pleased to discuss the point with him. It will be seen that there is a considerable margin between what can be got out of the older type machinery and that with the water tube boiler; and, of course, we shall be pleased to quote for boats to go any speed between the two. One great advantage of a boat to go a high speed is that she will run *very easily* at a fast speed. For instance, it is much easier to maintain 13 miles in a 40 ft. boat built to do, say, 16, than it is to maintain 11 in one built for 11½. The fast boat can always be run slow when the speed is not wanted, and will then, most probably, burn less fuel than a slower boat doing her best.

We give in the next chapter examples of various boats and the speeds they will go with the machinery there specified. In many cases the speeds could be considerably increased by altering the type of machinery, and we shall be pleased to quote for anything required on application.

\* Race was then discontinued

**Notes as to Outfit.**—It is impossible in view of the variety of fittings required by different owners to price boats fitted completely with all the fittings which are likely to be wanted. In quoting, however, we shall be very pleased to include any fittings which may be required if intending purchasers will give us a list of what they want. These vary, of course, very much in different boats according to sizes; and as their prices also vary, we cannot give them in detail here. Among those most generally used are awnings, gratings, cushions, anchors and chains, folding hoods, mast and sail, canvas cover for engines and boiler, tricolor lamp for tunnel, oars, boat-hooks, lumber crutches. If a boat is to be hoisted in davits, hoisting slings will be required and possibly chocks for carrying her on deck. Steering wheels are usually included in the large boats, and can be fitted to the smaller ones if required. The floor may either be plain pine or may be covered with linoleum or carpet, or gratings may be substituted. Where the machinery is to be carried on deck of a yacht, and the launch hoisted in davits without it, we make a trolley to carry it, with india-rubber tyres to the wheels, and a brass tray to keep dirt off the deck. A very useful fitting is a copper cooking pot heated by steam from the boiler, in which water can be boiled in a few minutes. Where a boat has to be used a great deal in rough water, we think it desirable to fit her with waterways and coamings as shown in several of the types in this list; where rough water is only occasionally met, it is useful to have canvas washcloths set up on stanchions which make the boat exceedingly dry and comfortable, and which can be removed when not required. A canvas turtleback can be set up over the forward part of the boat on spreaders in the same manner. For tropical climates, it is sometimes desirable to have curtains to lace down from the awning to the gunwale, and permanent awnings of teak, or for commercial work galvanized iron can be fitted if desired. The fitting of the cabins in the boats which have them, can of course be designed in accordance with the owners' tastes, as also can the fitting of the interior of the boat generally. We shall be pleased to submit designs for fitting up interiors in different kinds of work, fancy or otherwise, according to the style required, and the amount desired to be spent. In most of the boats with cabins these can be arranged to have sleeping berths at night, and seats in the day, and can if desired be arranged for all the bedding to fold into a recess at the back of the seats. Where expense is not an object, the whole of what is ordinarily brass work in a launch, can be either "silveroid" or nickel-plated, and the engine and boiler mountings nickel-plated to match. There are, however, so many ways of fitting out boats that we cannot go into it all here, but shall be pleased to discuss the matter with anyone who cares to.

## CHAPTER V.

### SOME TYPICAL DESIGNS OF LAUNCHES, YACHTS, &c.

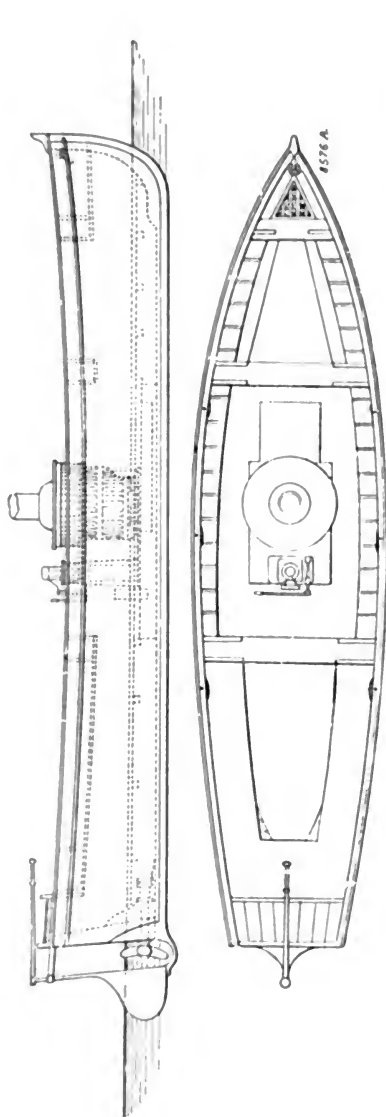
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IN this chapter we give illustrations and descriptions of a variety of different boats for customers' guidance. It will be quite understood that in a catalogue like this these can only be sufficient in number to just serve as hints to buyers as to what can be done, and we should be glad to be allowed always to quote for any boat to suit customers' requirements. In sending us enquiries we should be much obliged if intending purchasers would send us the following particulars of their requirements:—(1st) Accommodation required. (2nd) Speed. (3rd) Where to be used. (4th) In the smaller Launches whether a cabin will be required, and whether a place for man to sleep as well. (5th) If there is a limit as to price, how much can be allowed. Any other particulars will be useful, but the above are really essential. It is sometimes a good plan when there is a distinct limit as to price to tell us how much can be spent, and let us quote for a boat to give the best value for that. We shall, however, be obliged if customers will give us the fullest particulars of their requirements they can, as we can then best suit them. We may mention that we have about a thousand designs for different boats in our office, besides which we are always getting out new ones for special requirements. We give below, in the description of each boat, the speed she will go with the machinery as shown, and the speed that can be got out of a boat of that type, with a water tube or loco boiler and suitable engines, and we shall be pleased to quote for any speed up to those named on application. It is understood that for the higher speed the boat would be built substantially the same as for the lower, and provided with the same fittings, but would only have different type machinery.

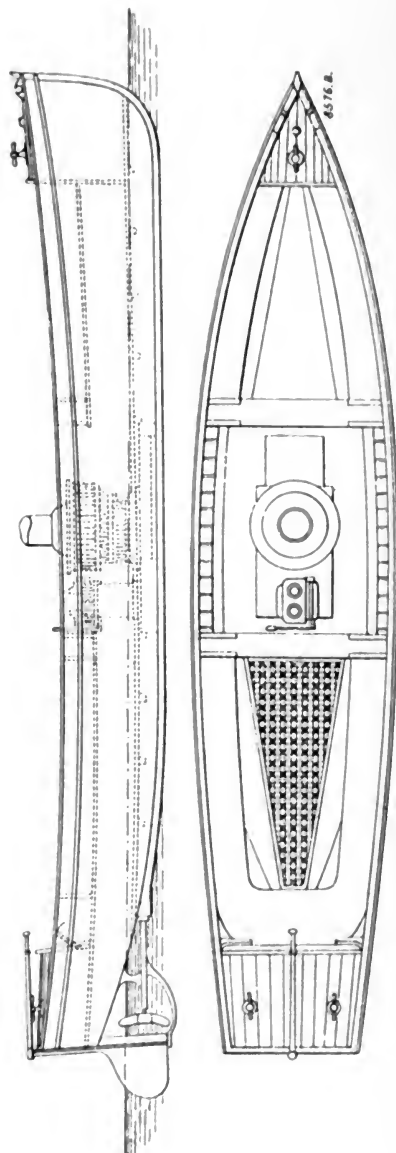
We are prepared to submit designs for craft up to about 150 ft. long, for all purposes, whether sea or river, business or pleasure, or for torpedo or other naval work, with speeds up to 26 knots.

#### TYPE No. 1.

**Yacht's Steam Dinghy.**—On page 20 we give an illustration, with the plan and section of a Yacht's Dinghy, suitable for carrying in a yacht of 40 tons and upward.



(Type No. 1.)



(Type No. 3.)



The Dinghy is Carvel or Clincher built, and is constructed of pine or mahogany, as may be desired. Dimensions 16 ft. by 4 ft., speed, about seven miles, with the "Kingdon" "4 A" size Patent Single Compound Surface Condensing Engine, or "4 A" size Quadruple Engine, and the "Kingdon" Patent Boiler. It has been specially designed to meet the case of yachts of small size which cannot carry a Launch of the ordinary kind, and so supplies a want long felt. On account of the lightness of the machinery, it can be easily removed from the boat in two or three minutes or the boat can be hoisted in davits with it in, if preferred. A small Cutter so fitted is found most useful for towing in calm weather, and tows with at least as much power as two four-oared gigs.

If necessary, we can supply Launches of this size fitted with Compound Machinery and Water Tube Boilers, in which the weight of the machinery does not exceed 3 cwt., and the weight of the Launch, complete, 6 cwt.

Speeds up to nine miles per hour can be obtained in above boats.

### **TYPE No. 3.**

**Yacht's Steam Launch.**—The illustration on page 20 represents a Yacht's Launch of the following dimensions:—Length, 27 ft.; beam, 5 ft. 8 in.; depth, 2 ft. 8 in. It is built in either pine or mahogany, and either Carvel or Clincher as may be desired. The stern is built either cut-away as shown, or screw-in-well, if preferred, at the same price.

The speed is about ten miles an hour with the "Kingdon" patent "A Quadruple" Engines and Boiler.

Speed, if fitted with different machinery, up to 14 miles.

The above boat is a representation of a type which is largely in use for hoisting up yachts and other purposes. They are built in all sizes, and for yacht's launches are usually from 20 to 30 ft. long; the sizes below 25 ft. being fitted with "4 A" machinery, and those above 27 ft. with "A B." When weight is very limited, we can quote for these Launches with extra light machinery to suit the case.

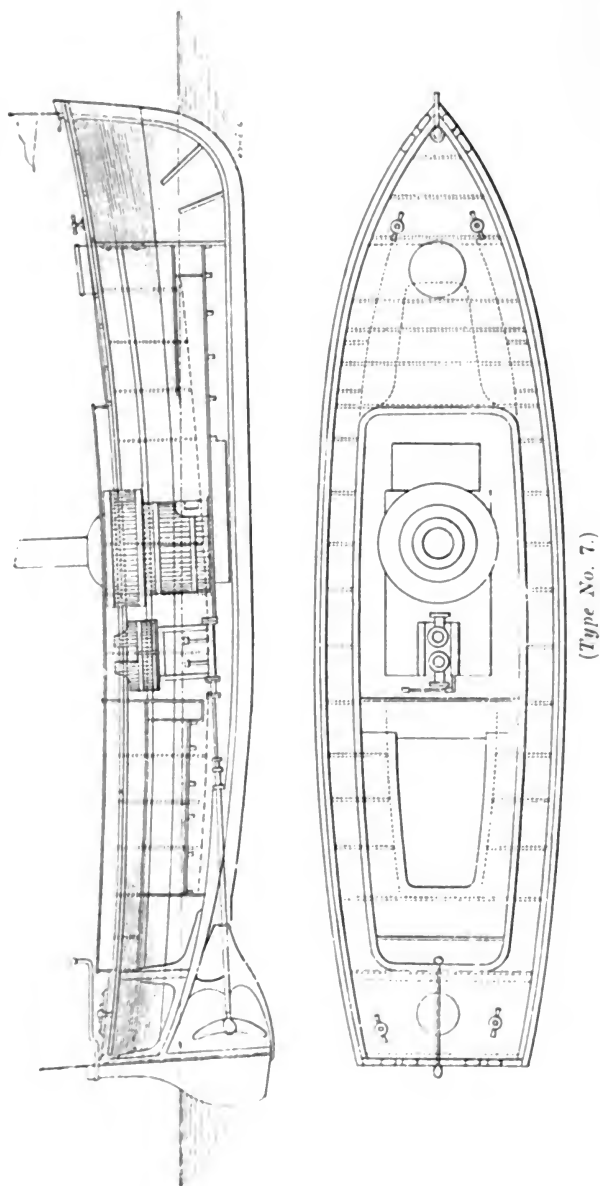
The Launch Race at Dartmouth Regatta, open to all comers, was won by these Launches from '84 to '90, inclusive, when the race was discontinued.

### **TYPE No. 7.**

**Man of War's Steam Cutter.**—The illustration on page 22 represents a 30 ft. Service Cutter, as supplied to H.M.'s Navy. It is built with a double skin of mahogany, and the dimensions are:—Length, 30 ft.; beam, 7 ft.; draught, 2 ft. 4 in. fitted with air cases.

A Cutter of this description has been supplied for H.M.'s Yacht "Osborne," and fitted with the "D" size "Kingdon" machinery. Stern cut-away as shown, but the latter can be built with screw-in-well, if desired, at the same price.

With machinery as above, speed  $9\frac{1}{2}$  miles. If necessary, speed up to 13 miles can be obtained; if without air cases speeds considerably higher will be obtained.



## TYPE No. 8.

**Powerful Sea-going Launch.**—The illustration on page 24 represents a launch 43 ft. by 8 ft. She has cabin aft, with w.c. and lavatory, and is decked in forward to make a forecabin. This is a type of a good and powerful sea boat, roomy and comfortable, and well suited for sea-fishing and shooting, at a moderate price. She is usually built of pine, and the speed is 9½ to 10 miles an hour, fitted with the "G" size "Kingdon" Patent Single Compound Surface Condensing machinery.

*Notes as to the "G" size of Machinery.*—This machinery is adapted for Launches of this description, on account of its great simplicity and cheapness. If fitted with "D" Quadruple, the cost is £70 more.

Higher speeds can be obtained if necessary.

## TYPE No. 9.

**Fast and Powerful 50 ft. Launch.**—We show on page 24 a design of a fast and powerful Launch, suitable for sea and river work. She is shown with cabin aft, and a screen forward to protect the steersman. This screen is not required in fine weather or in river work, and is made removable.

This boat is built of pine, teak, or mahogany, as may be required, and having a cut-away stern is very handy. She will turn in her own length, and is moreover a good sea boat.

This boat has a speed of about 13 miles an hour, with the "Kingdon" "F" size Quadruple Expansion machinery, and the "Kingdon" Patent Boiler; or 11½ miles if fitted with "D" Quadruple, at a reduction of £74.

Speed up to 20 miles an hour if desired.

## TYPE No. 18.

**Pleasure Launch for the Upper Thames.**—This is a smaller boat than Type No. 16, and is specially suited for the upper reaches of the river.

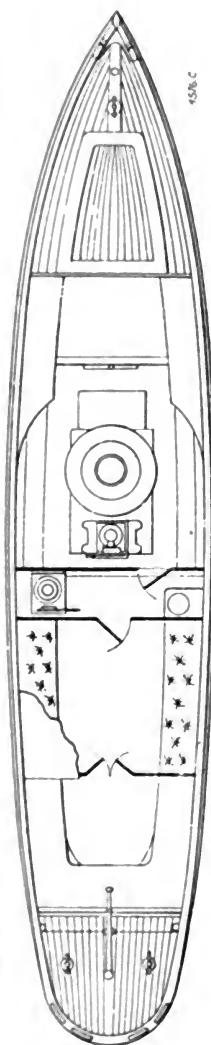
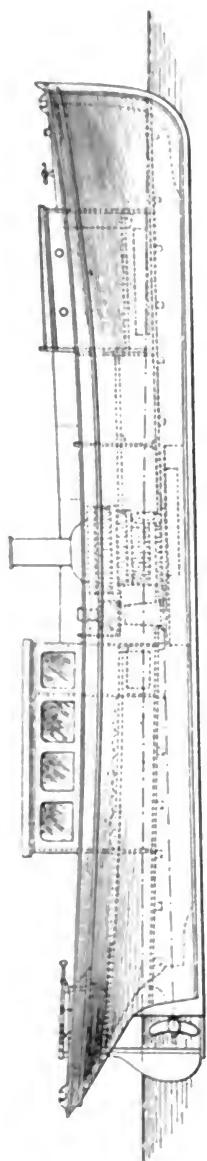
Length, 40 ft.; beam, 5 ft. 6 in.; by 2 ft. 8 in. deep. Built of steel, cedar, teak, or mahogany, copper and metal fastened throughout, deck forward and aft.

The machinery is the "A B" size "Kingdon" Patent Quadruple Expansion Engine, and the "Kingdon" Patent Vertical Natural Draught Boiler, for a working pressure of 175 lbs.; speed, 12 miles per hour.

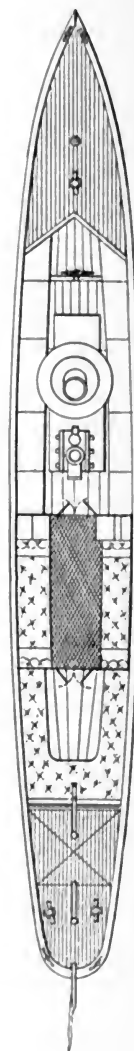
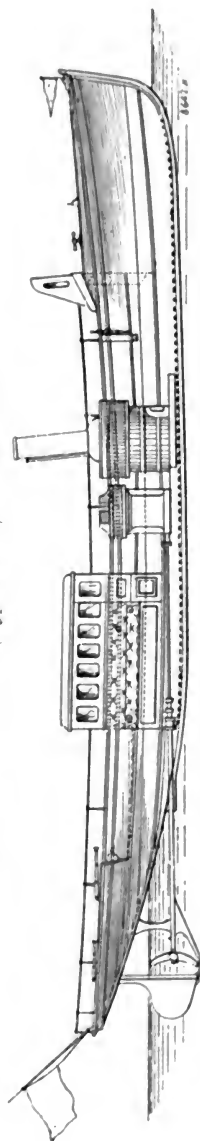
Speed up to 20 miles.

## TYPE No. 20.

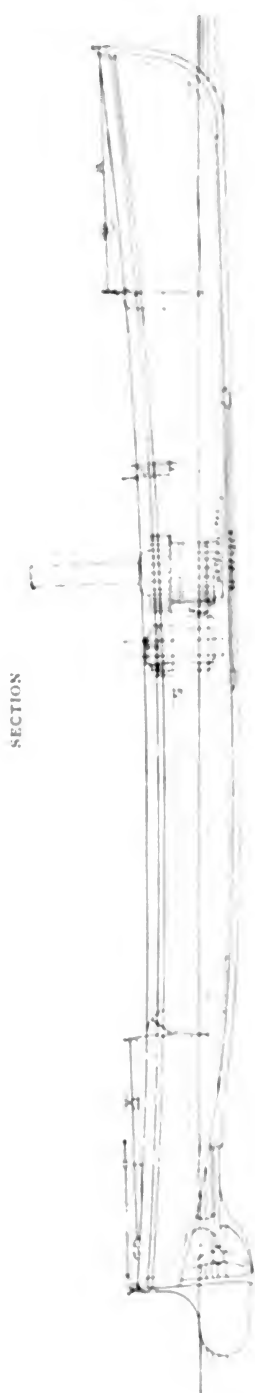
**Powerful Tug.**—This is a special boat which we have built for towing purposes, having extra powerful engines, and arranged with awning suitable for hot climates, and which has proved very successful.



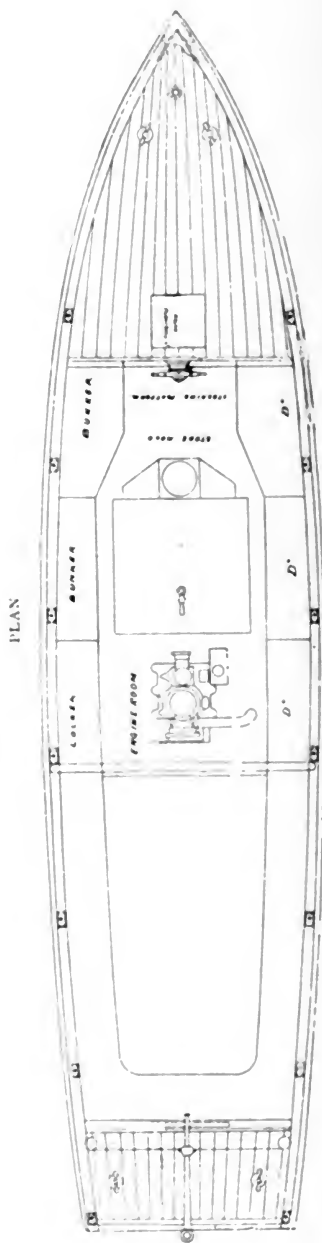
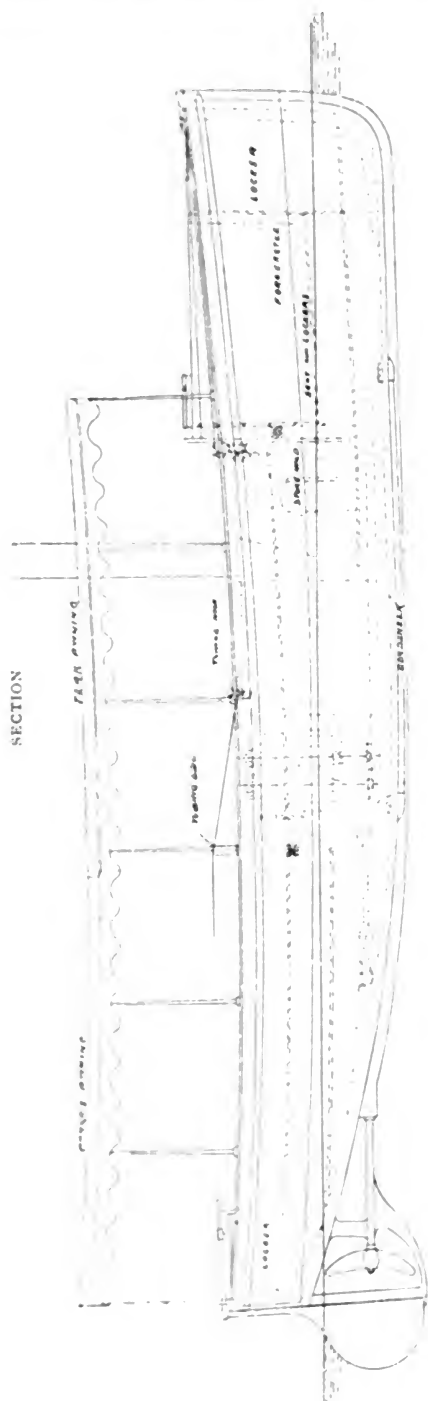
(Type No. 8.)



(Type No. 9.)



PLEASURE LAUNCH FOR THE UPPER THAMES (Type No 12)



POWERFUL TUG.—(Type No. 20.)

## **SIMPSON, STRICKLAND & Co., Ltd., Dartmouth & Teddington.**

Length, 45 ft.; beam, 10 ft.; by 5 ft. 9 in. deep. Forecastle forward having seats and lockers. Arranged with coal bunkers and lockers in engine room; wood awning over engine space; canvas awning over stern sheets; towing beam and hook, bilge pump, steering wheel, anchor, and chain.

The machinery is the "H" size "Kingdon" Patent Quadruple Expansion Engine and Horizontal Return Tube Boiler, for a working pressure of 175 lbs.

Speed, 11 miles per hour when driving alone.

### **TYPE No. 24.**

**Steam Yacht for Sea or River Work.**—Is of moderate draught, and therefore suitable for river work, whilst, at the same time, a powerful and snug sea boat.

Length, 95 ft. between perpendiculars (102 ft. over all); beam, 13 ft.; by 8 ft. 3 ins. deep. Carvel built of teak, with elm bottom, copper and metal fastened throughout. Keel and steamed timbers of American elm, stem, stern-post and knees of English oak; floors of steel; bulwarks, saloon and all fittings above deck of teak; rudder, rudder-post, and shoe of gun-metal.

Arranged with forepeak, w.c., forecastle, galley and pantry, engine and boiler space, with bathroom and w.c. Main cabin under after deck; two w.c.'s, stove in galley, and four berths in forecastle.

The machinery is the "L" size "Kingdon" Patent Quadruple Expansion Engine; boiler of the Horizontal Return Tube Type, for a working pressure of 175 lbs.

Speed, about 13 miles an hour with machinery as shown, but can be increased to 24 if wanted; but for this speed the engine space would have to be somewhat increased.

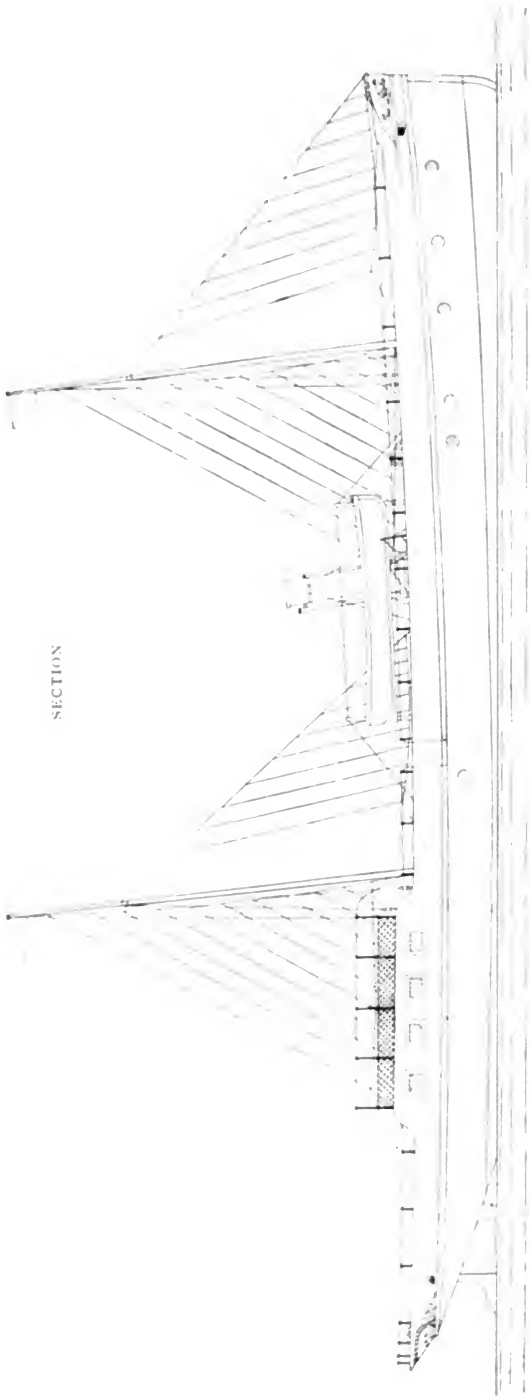
### **TYPE No. 28.**

This shows a Launch very similar to the last but 60 ft. by 7 ft. 6 in. and fitted with cabin. Engines double 7 in., speed about 20 miles.

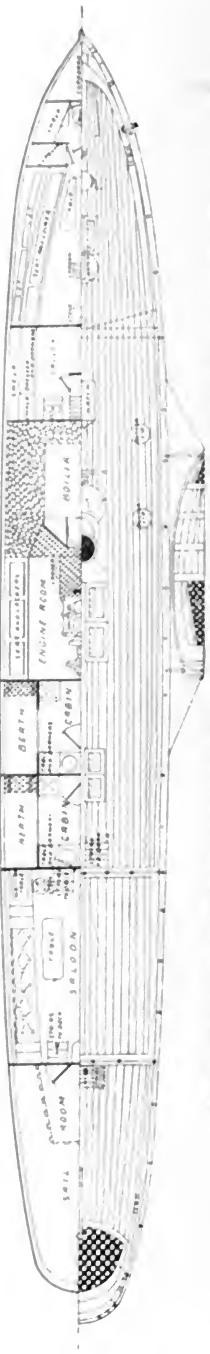
### **TYPE No. 29.**

This shows a design which we think may suit many people, being about the smallest size Launch that can be comfortably arranged to be decked all over. She is 40 ft. by 8 ft. by 4 ft. 3 in., and, as will be seen, has a good forecastle and engine room, while the saloon can be arranged with two folding berths, and w.c. and lavatory are provided.

The machinery shown is 5 in. and 10 in. by 6 in. compound, with a water tube boiler; and with this a speed of 10½ miles would be obtained without difficulty. A "D" size quadruple could be put in the same space, and would give the same speed with greater economy. If higher speed than this was required, the engine space would have to be increased, and possibly the proportions of the boat slightly altered, when 16 or 17 miles could be got; and we shall be pleased to quote for this if desired.



PLAN.



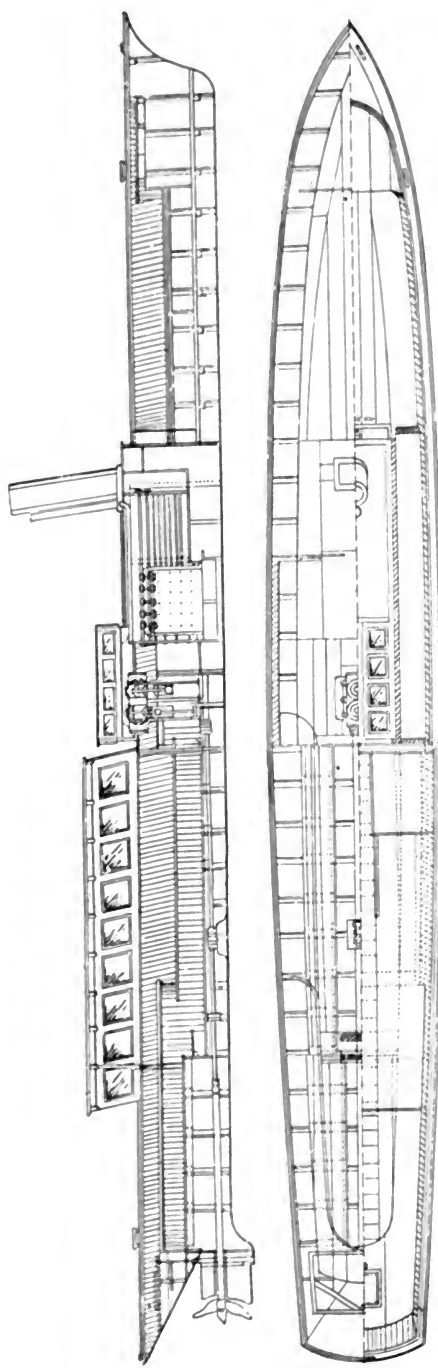
COMMODIOUS STEAM YACHT FOR SEA OR RIVER WORK. — (Type No. 24.)



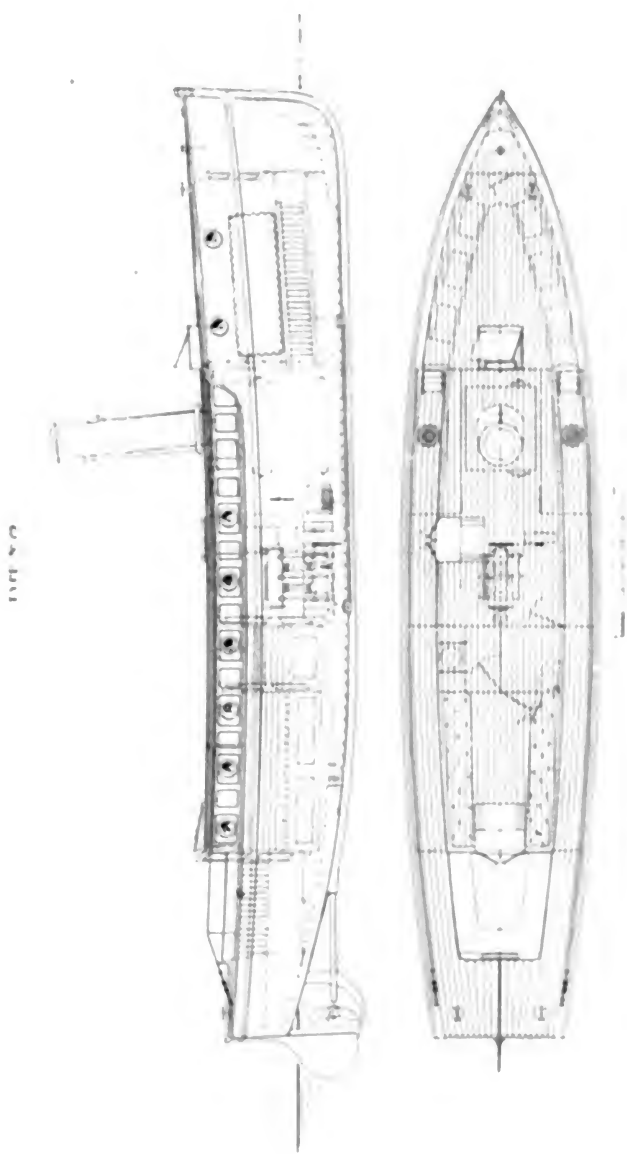
SIMPSON, STRICKLAND & Co., Ltd. Dartmouth & Teddington

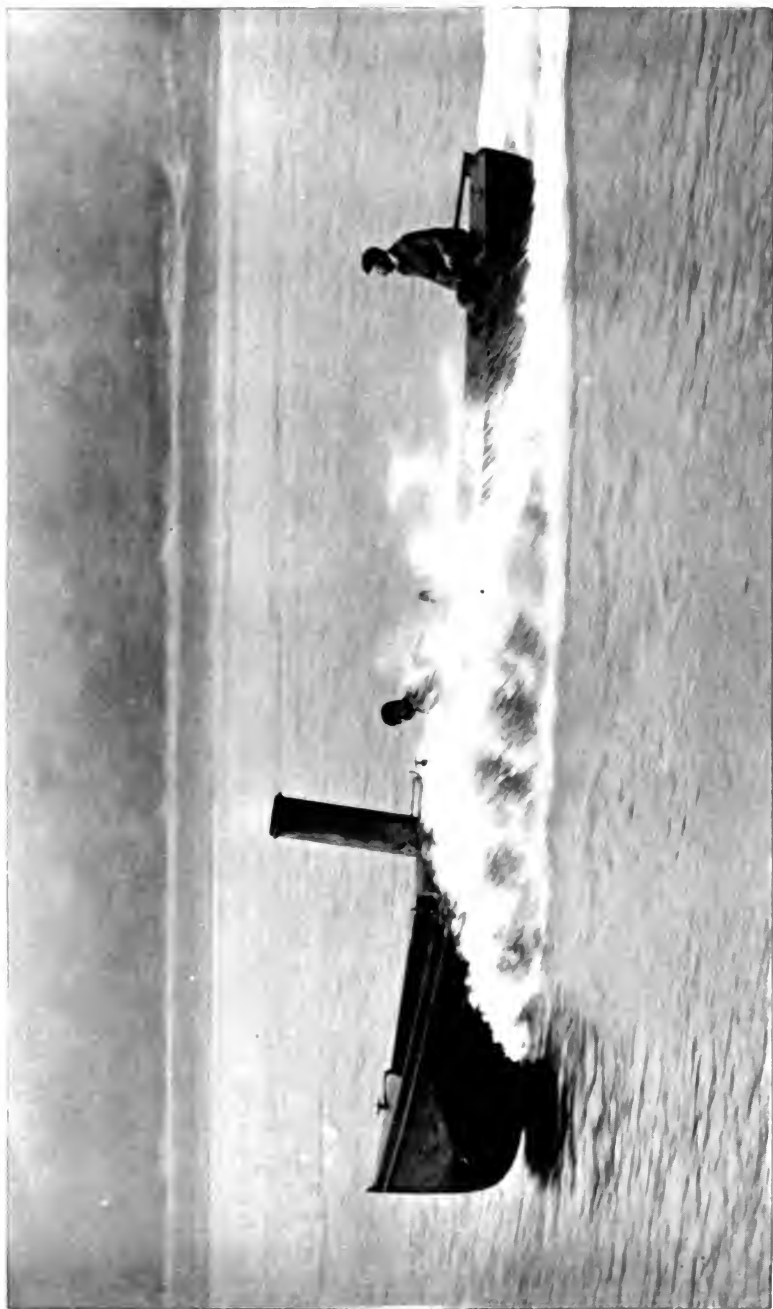


BOAT 40 FT. 6 FT., DOUBLE 5 5 NON-CONDENSING ENGINES, SPEED 18 MILES.

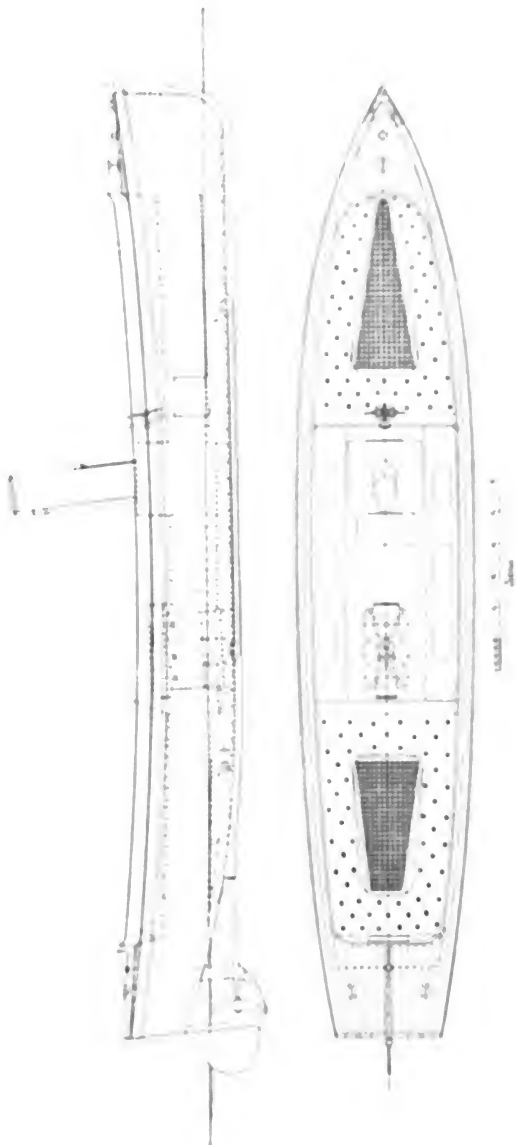


(Type No. 28.)





TYPE N° 30



### TYPE No. 30.

**Fast Yacht's Launch.**—This shows a 30 ft. Launch, suitable for carrying on a Yacht if desired, fitted with a triple engine and water tube boiler. This boat will maintain a speed of  $13\frac{1}{2}$  miles if made to hoist in davits with machinery in. If not made to do this the boat could be built lighter, and a somewhat higher speed obtained.

Price in list includes cushions, gratings, and wheel, as shown.

### TYPE No. 31.

**Fast Cruising Launch.**—This represents a decked Launch, 70 ft. by 10 ft. by 6 ft., generally similar in type to No. 29, but a good deal larger. In this there is, besides the saloon, a separate sleeping cabin, and also a pantry and w.c., so arranged that they can be entered from the companion without going into the accommodation; and in the drawing the sleeping cabin is placed aft. The accommodation could, of course, be arranged differently if desired. The machinery as shown is triple, with 16 in. low pressure cylinder, and would drive the boat at a maintained speed of 15 miles. A boat of this size and type could be built with a speed of 20-22 miles if desired, more engine power, of course being put in.

### TYPE No. 33.

**62 ft. Crusing Launch.**—This design shows a Launch 62 ft. by 11 ft. by 5 ft. 3 in., which is very suitable for crusing round the coast and up rivers, etc. She has, as will be seen, a well forward and aft, both of which have water-tight floors and are self-emptying, while the accommodation consists of saloon, sleeping cabin, w.c., lavatory, and pantry. The machinery as shown is "H" size Quadruple, and will give a speed of 12 miles.

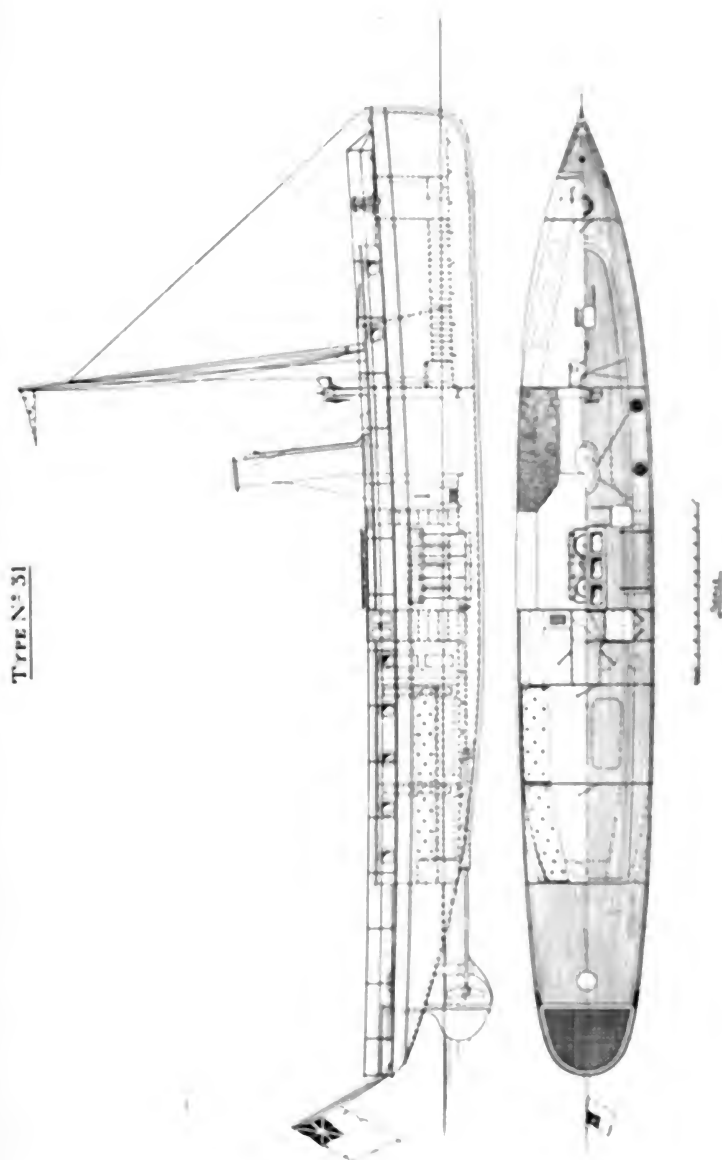
This boat is practically the same as the "Bluebell" which is well known on the south coast of England. She has, however, some small modifications, the most important being that being fitted with our latest type of Quadruple machinery, a higher speed can be obtained than with the older type.

### TYPE No. 34.

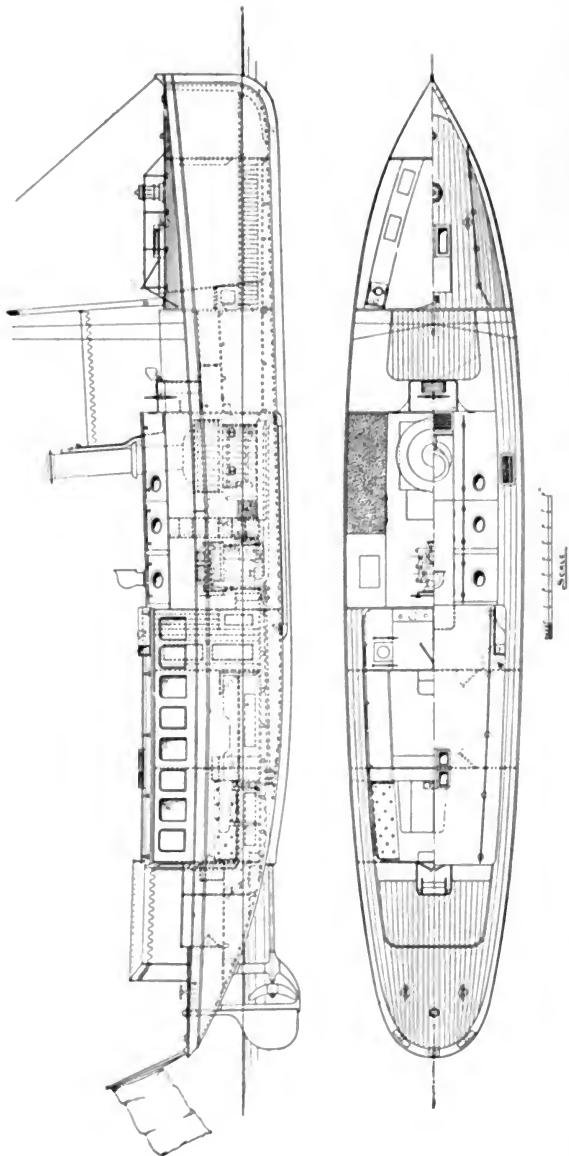
**High Speed Launch.**—This type is a Launch suitable for ordinary work, but provided with engine power to drive her at a high speed. She is 55 ft. by 7 ft. 6 in. by 4 ft. 8 in., and has a 12 in. triple engine with a water tube boiler, and this is capable of driving her at a maintained speed of 17 miles per hour. She is intended for sea work, and cabin can be slept in.

### TYPE No. 35.

The drawing of above represents a small steam yacht for general crusing. She is 75 ft. long over all by 15 ft. beam, and as will be seen is arranged with all the accommodation forward and the crew aft. A deck house is also provided which will be found very advantageous in wet weather. The accommodation includes two sleeping cabins, w.c., pantry,

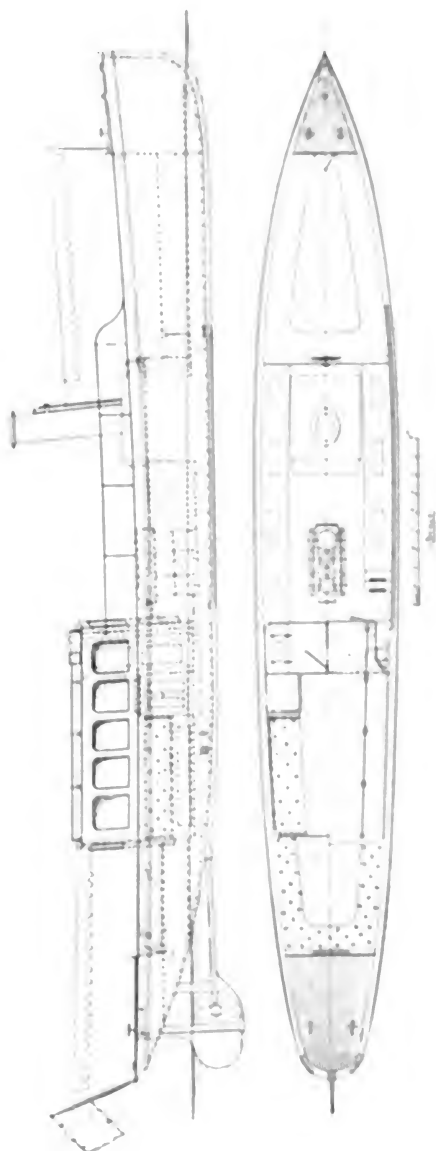


TYPE N°33

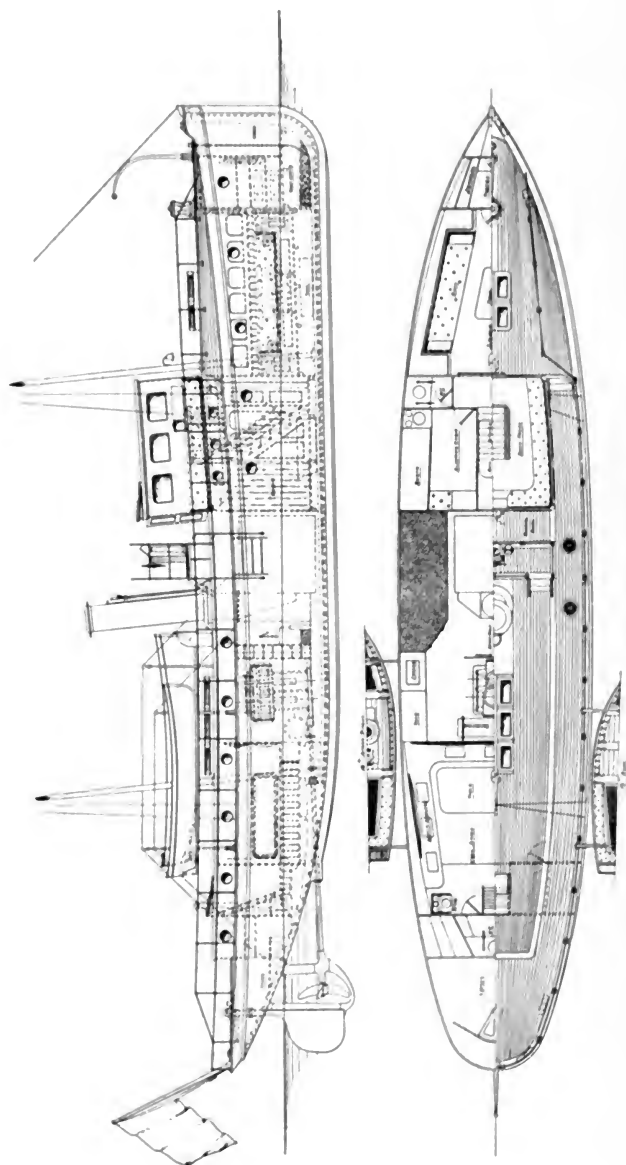




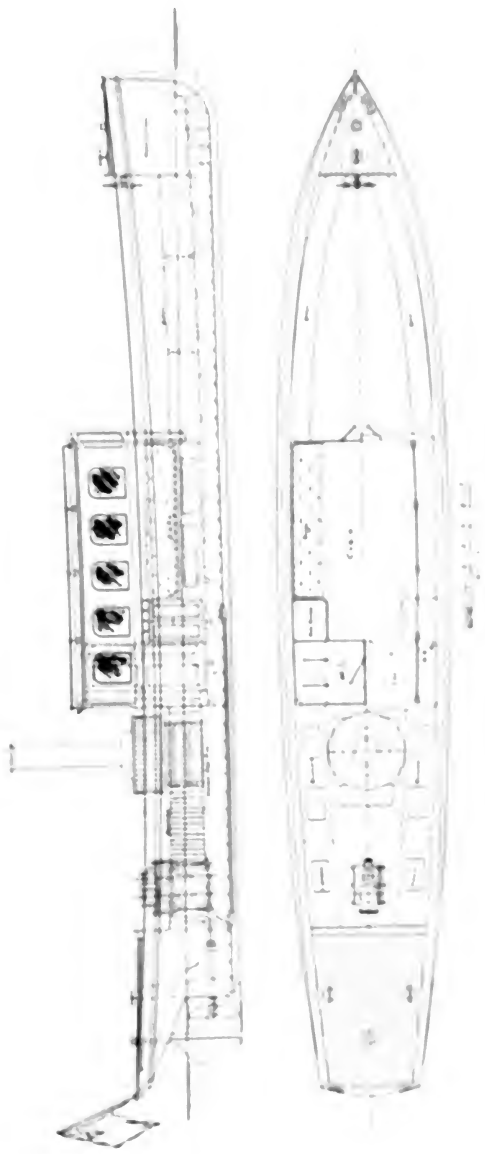
TYPE N° 34



TYPE N° 35



Type N° 36



saloon, and deck house. This accommodation could be altered in any way desired, or it could be placed entirely aft of the engines. The machinery shown is "J" size Quadruple, which would give a speed of  $10\frac{1}{2}$  knots. Machinery could, however, be provided for any speed up to 16 knots if required.

### **TYPE No. 36.**

This shows another size of Launch with the accommodation all forward of the machinery, somewhat similar to Type 32, but larger and fitted with a cabin. She is 50 ft. by 8 ft., and has a cabin large enough to sleep in, which can be fitted with folding berths, if required, sideboards, and also w.c. and lavatory, and there is also a large open well forward. For use in smooth water we think this arrangement will be found very satisfactory, and owing to the light weight of the machinery, the Launch can be made to trim well in spite of its being placed right in the stern. As illustrated, the Launch is fitted with "D" size Quadruple machinery which will give her a speed of  $9\frac{1}{2}$  miles. We do not consider that a very much higher speed than this is to be obtained with the machinery in position shown, but could obtain  $11\frac{1}{2}$  or 12 if necessary, without altering the accommodation materially.

### **TYPE No. 37.**

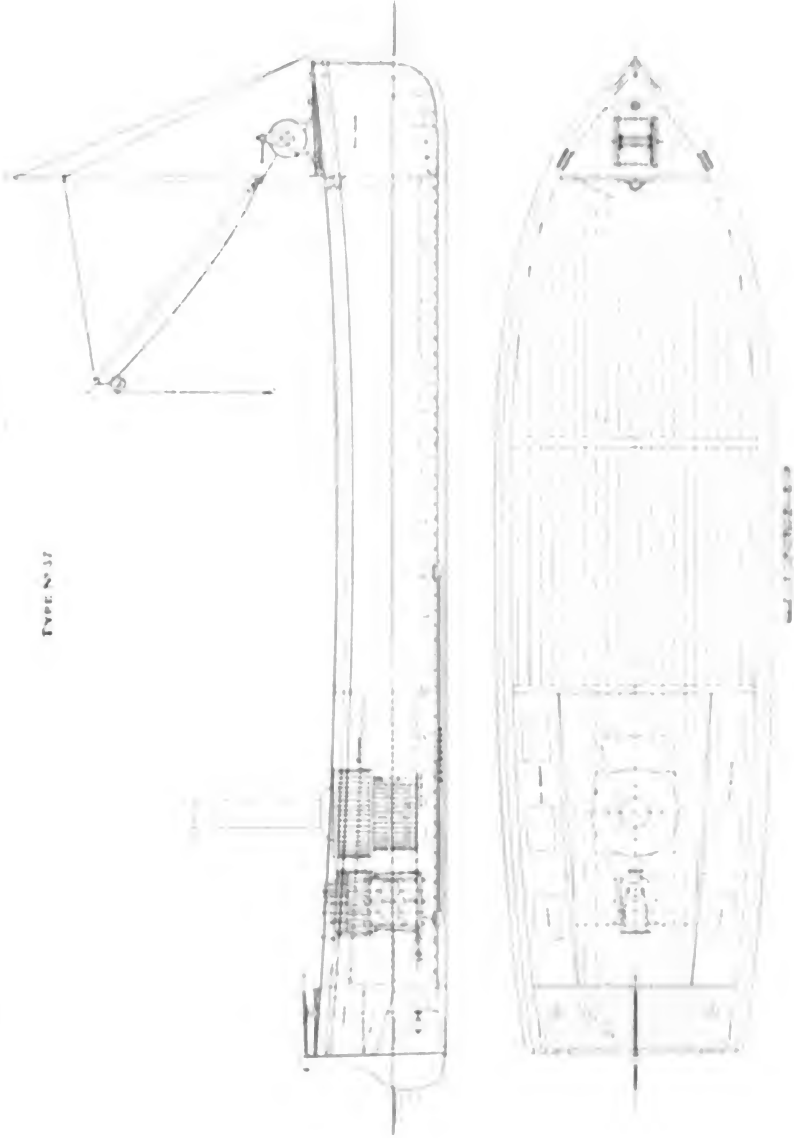
Some years ago we fitted an "E" sized Single Compound Engine into a barge employed in carrying sand, and after having some experience with it, the owner had a larger one built and fitted with a set of our "F" sized Engines. The latter we show, and she is 50 ft. long, 12 ft. beam, and carries about 20 tons of cargo, the speed being about  $7\frac{1}{2}$  miles loaded and  $8\frac{1}{2}$  light. She has been running for some years and is giving every satisfaction. Our machinery will be found in every way suitable for this class of work, as owing to its extreme lightness a given boat will carry a larger amount of cargo than is the case where heavy machinery is used, while its extreme economy is conducive to good dividends. We shall be pleased to quote for barges and cargo boats of all sizes up to say 100 ft. long on application.

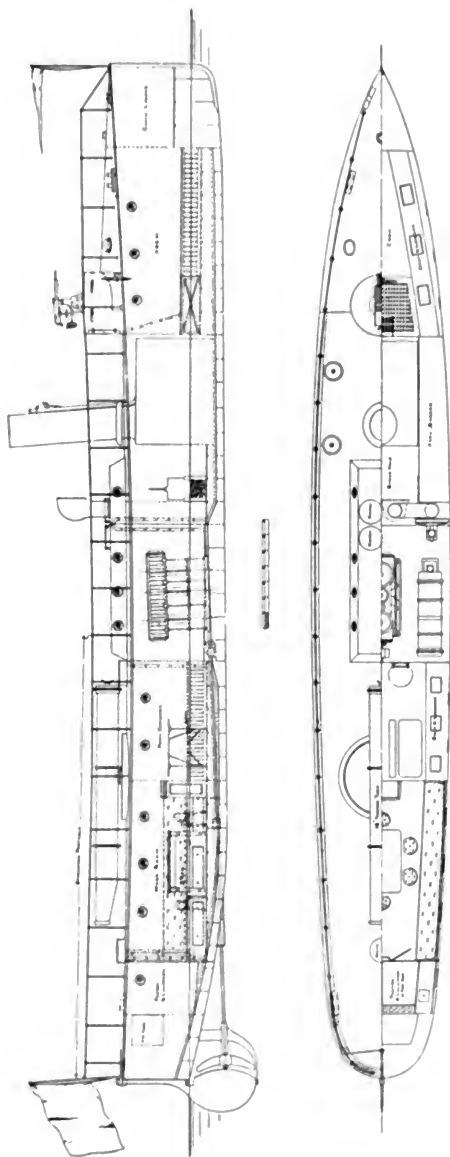
### **TYPE No. 38.**

This shows a boat of the 2nd Class Torpedo Boat Type, 65 ft. by 9 ft. by 6 ft., and we shall be pleased to quote for vessels of this type either for war or other purposes, for speeds up to 20 knots or more in proportion to their lengths.

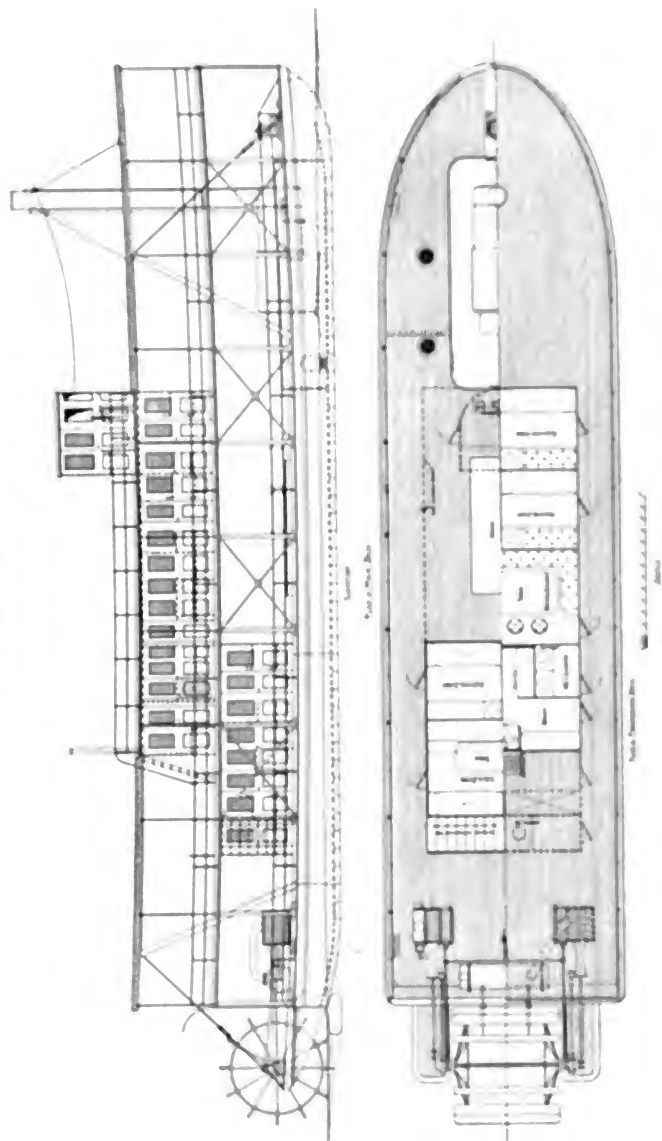
### **TYPE No. 39.**

Stern wheelers are now used to a large extent on Colonial and other rivers for exploring and general traffic, and we shall be very pleased to quote to suit customers' requirements. Above shows a vessel 80 ft. by 20 ft. with a draft of 18 in. The Engines are Compound Surface Condensing, and with 10 in. high pressure cylinder, 20 in. low pressure cylinder by 30 in. stroke, will give her a speed of 10 miles. For the large sizes of stern wheelers we think condensing machinery will be found most satisfactory,





TYPE N° 39.



and where fuel is dear or the water bad, it can be fitted with advantage to boats as small as 25 ft. long. When fuel economy is of no consequence, non-condensing machinery is often preferred, and in this case we should consider two 10 in. cylinders, 30 in. stroke would be most suitable. We shall be pleased to quote for these boats of any size to suit all requirements in either compound condensing or non-condensing machinery. Water-tube boilers of the Thornycroft Type are specially suited for burning wood in these boats.

### **TYPE No. 40.**

Many people desire to sail, but somewhat object to being left occasionally absolutely helpless when the wind falls calm; and we have fitted auxiliary machinery into what are otherwise regular sailing yachts, just to make them independent of the wind. The illustration shows a boat 25 ft. by 8 ft. 6 in., fitted with our single "A" size Compound Engines, which was used very successfully by her owner for general work. The total weight of the machinery being about 6 cwt., while a boat of this size carries some tons of ballast, made practically no difference to her, and gave her a speed of 5 knots. Many, if not most auxiliary boats, are spoilt by having power put into them which aims at too great a speed. If this is done the result is a low powered steamer which can neither steam nor sail well; while an auxiliary proper should not use her steam except when it is calm, or just when entering a harbour. We have fitted vessels from the size shown up to 200 tons in this manner with satisfactory results. A great advantage of the small machinery is that if a two-bladed propeller is used and placed up and down behind the stern post it offers no resistance worth mentioning to the boat when sailing. When it is desired to convert an existing yacht, the screw is carried outside the rudder as shown. The universal joint which drives it will run for years without attention.

### **TYPE No. 42.**

This shows a very small stern-wheeler substantially the same as one recently built abroad for which we supplied the machinery. Dimensions 24 ft. by 5 ft. 8 in. by 6 in. draft. Engines  $2\frac{1}{2}$  in. and 5 in. by  $7\frac{1}{2}$  in. compound surface condensing. For most purposes two  $2\frac{1}{2}$  in. cylinders  $7\frac{1}{2}$  in. stroke exhausting into the funnel would be quite as satisfactory and cheaper. Speed about 6 miles.

### **TYPE No. 43.**

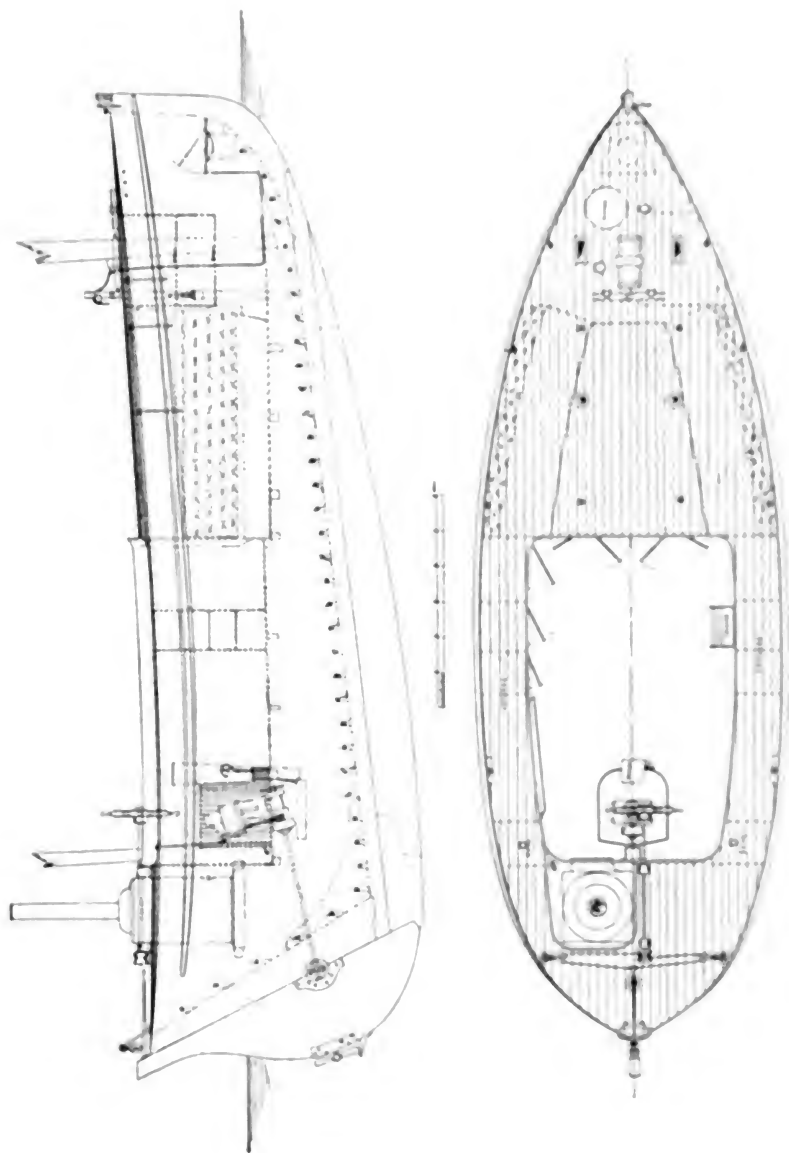
Many people prefer to have Yacht's launches fitted with waterways and coamings, and we show one 25 ft. 5 ft. 8 in. and 2 ft. 8 in., fitted with Quadruple Machinery "A" size, and Thornycroft boiler. This would give a speed of 9 miles, but about 13 could be obtained without making the boat too light to hoist in davits, with machinery in if desired.

### **TYPE No. 46.**

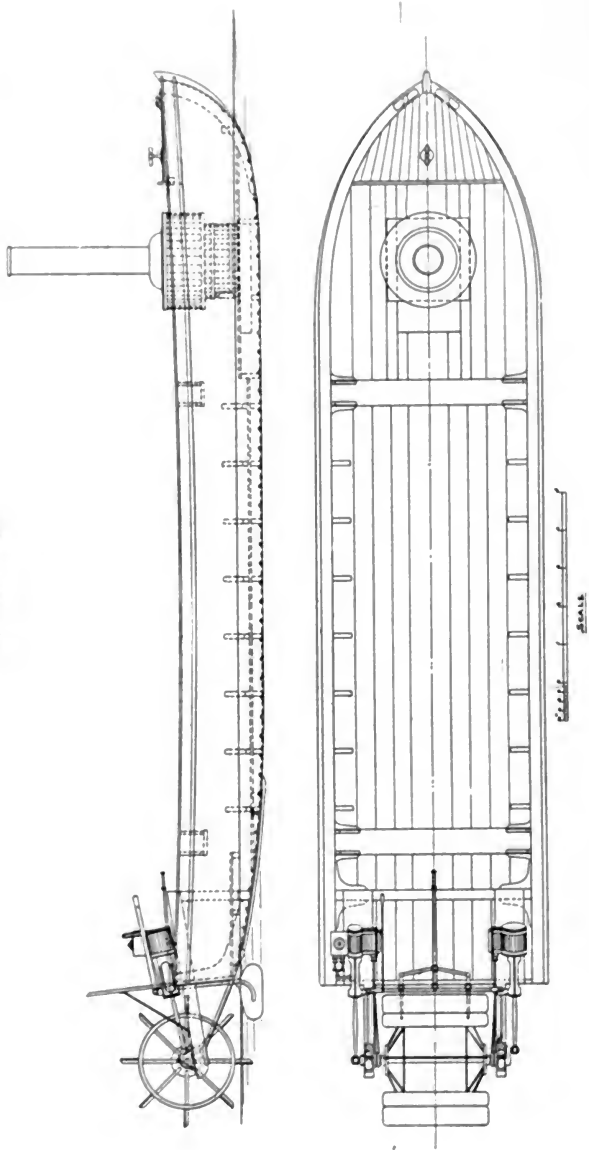
This is a smaller edition of type 36 and the same remarks apply. She is 33 ft. by 6 ft. and has engines 3 in. by 3 in. non-condensing, which will give her a speed of 9 miles.

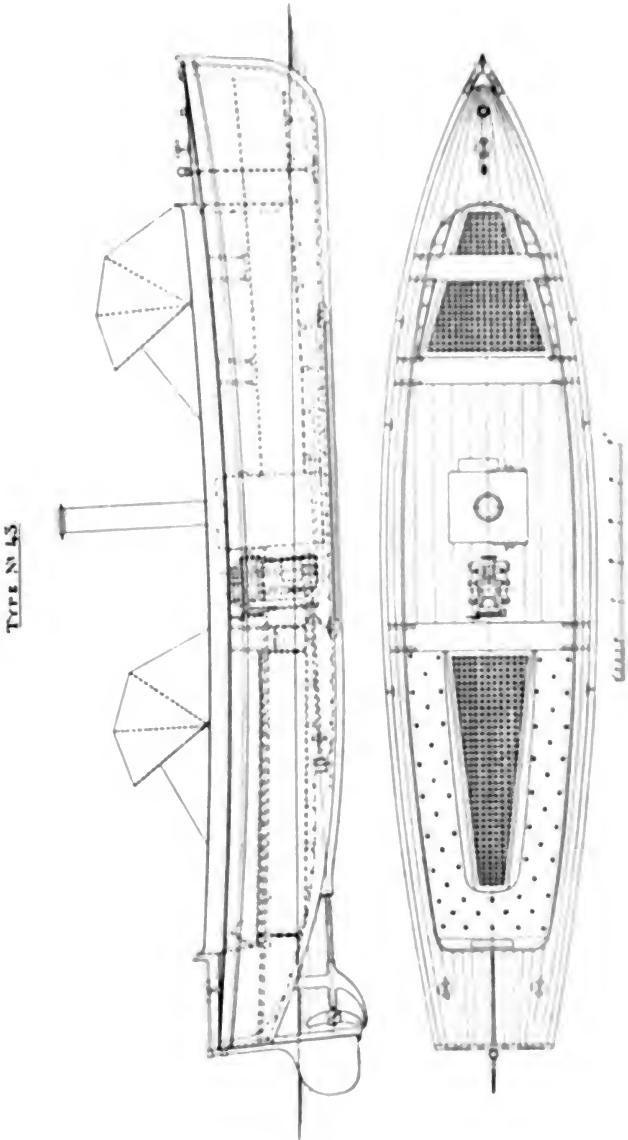


Type N° 40

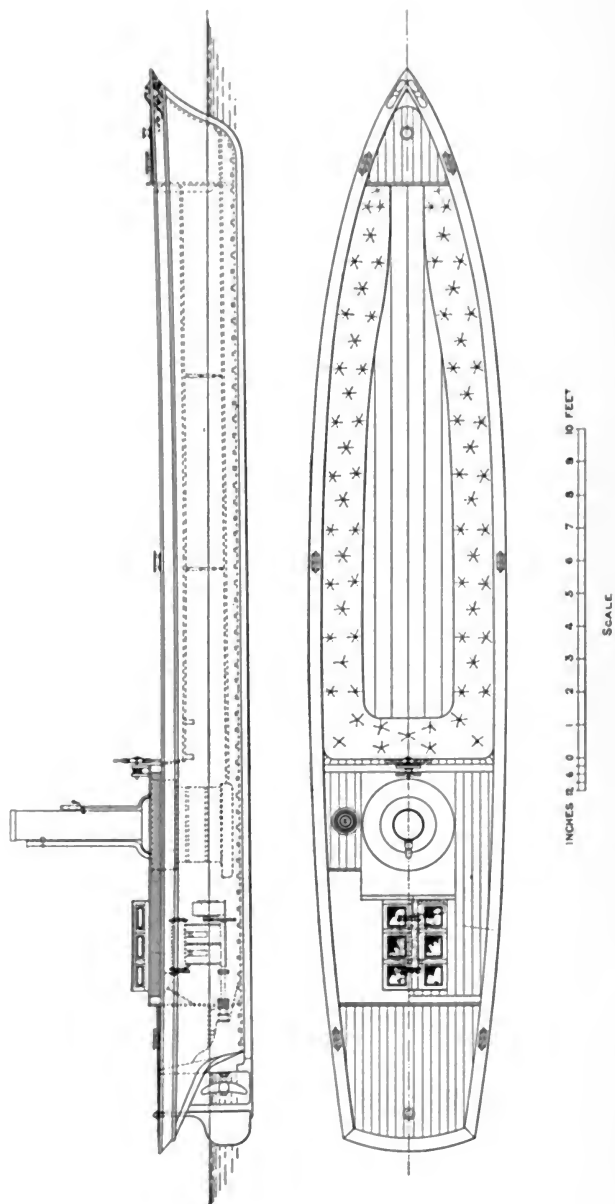


TYPE N° 12

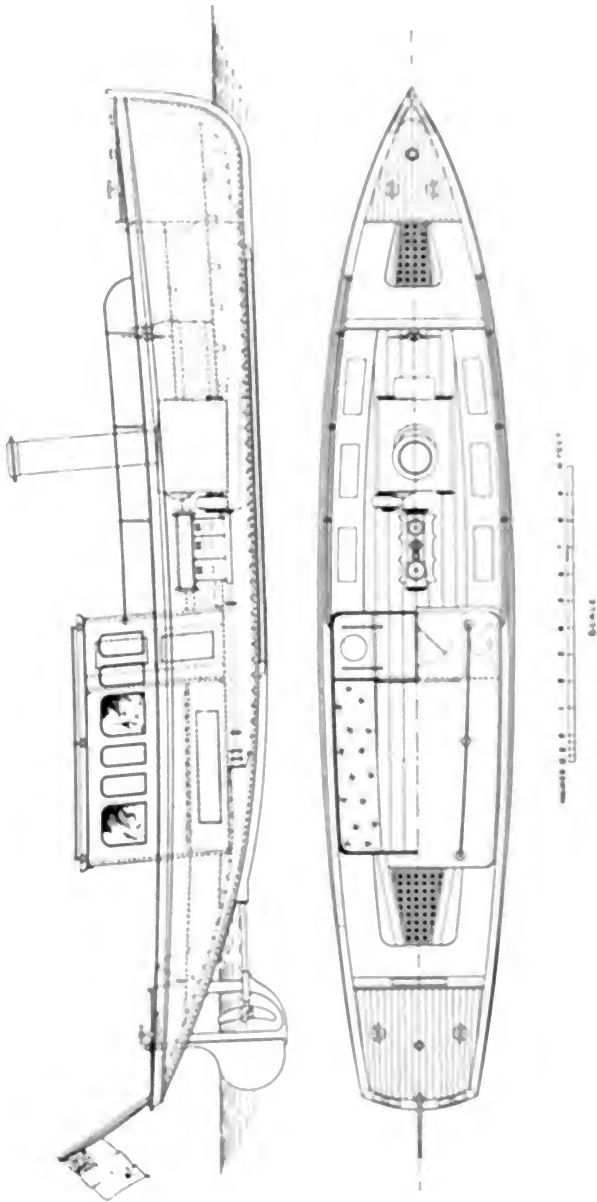




TYPE N<sup>o</sup> 46.



TYPE N° 47.



### **TYPE No. 47.**

This is given as an example of the smallest boat which can have a really satisfactory cabin. She is 38 ft. long by 7 ft. beam and has triple expansion machinery 8 in. to give her a speed of  $9\frac{1}{2}$  miles. If the lavatory was done away with a smaller boat would carry a small cabin, but in this case its usefulness is much impaired, as it also is if the seats are not made sufficiently long to sleep on.

### **TYPE No. 48.**

For purely river work the design shown opposite is better suited than any other. The Launch is fitted with non-condensing engines and a loco type boiler, which are placed below a deck to facilitate passage from one end of the boat to the other. The arrangement is a very general one on the Thames, and we think cannot be much improved for the work. The Launch illustrated is fitted with very powerful engines for umpiring regattas, and if this was not required the machinery space could be reduced. She is 47 ft. by 6 ft. 6 in. Speed as shown, 24 miles for short runs.

### **TYPE No. 49.**

We give this principally to show the general arrangement of a boat with compound engines and a horizontal boiler suitable for extremely rough work. She is shown 35 ft. by 7 ft. with  $4\frac{1}{2}$  in. and 9 in. cylinders to give a speed of about nine miles, but is only given as a type which can be made any size or power required.

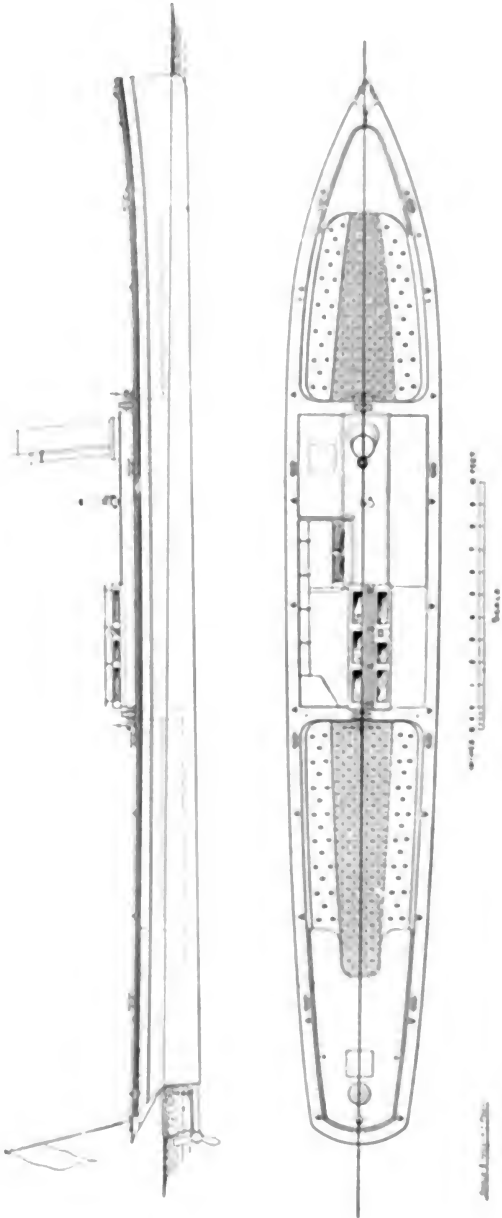
### **TYPE No. 50.**

As an example of an extremely beamy and comfortable Launch not built for great speed we give a boat we recently built for the Western Australian Government. She is 46 ft. by 10 ft., and has triple engines, which give her a speed of  $10\frac{1}{2}$  miles. The most noteworthy point about her is the arrangement of the roof over the engines and the screen forward, which, with the canvas sides, enables the machinery to be closed in completely, or just as much as desired. This could be done in other Launches of fair size.

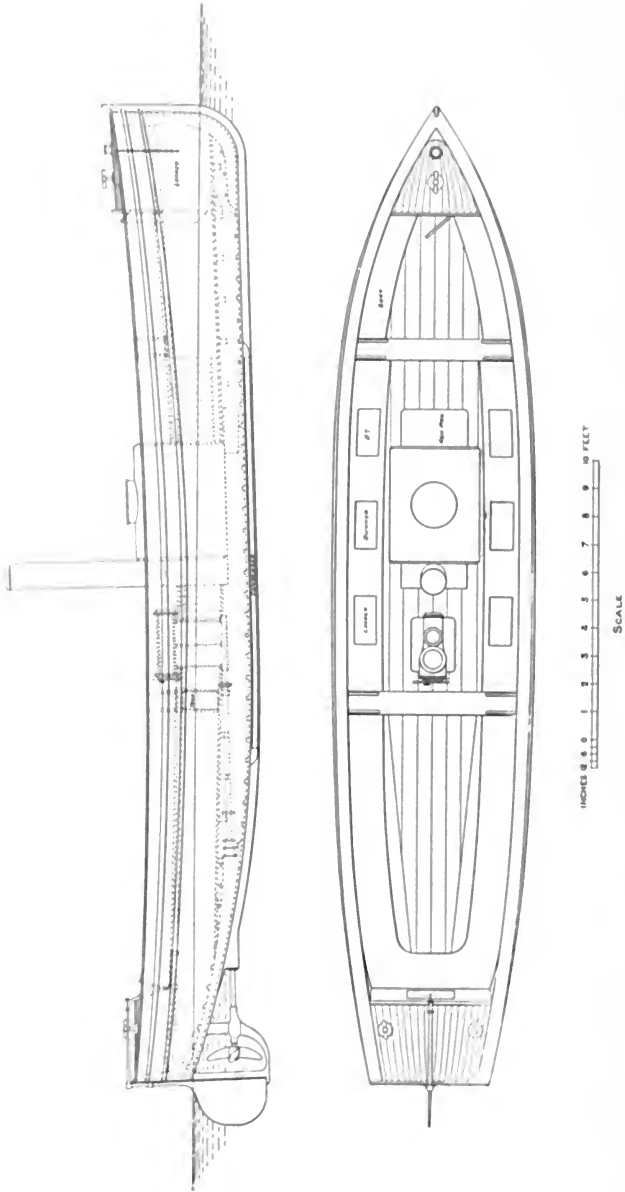
### **TYPE No. 51.**

Stern wheel boats while very useful for some purposes cannot be made to go a very great speed, and where it is desired to increase this, and at the same time keep to a light draft, it is necessary to employ a propeller in a tunnel. The design, page 54, shows one of this type, recently constructed by us, to run on a draft of 11 inches and have a speed of 13 miles. She is 77 ft. long by 12 ft. 6 in. beam, and is fitted with quadruple machinery and a water tube boiler, but this would, of course, depend on where she was wanted for. She was built of steel of exceptionally heavy scantlings for this class of work, and in sections short enough to go by rail. Any of the boats shown with stern wheel, or any type of light draft boats can be built with equally light draft as screw, and we shall be pleased to quote to requirements.

TYPE N<sup>o</sup> 48

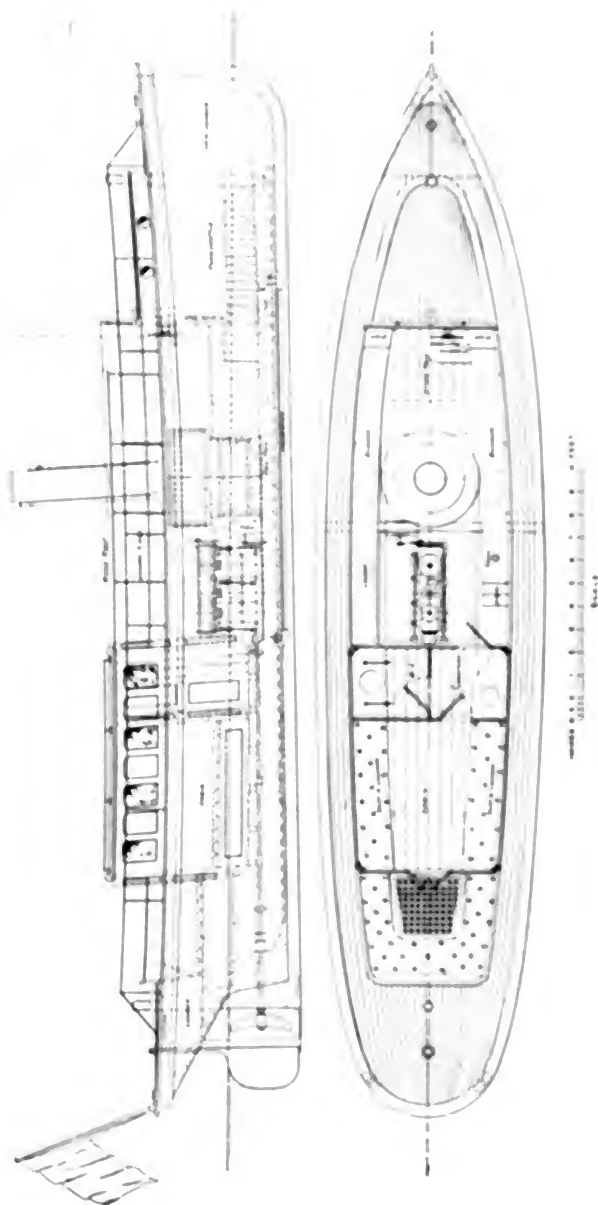


TYPE No 49

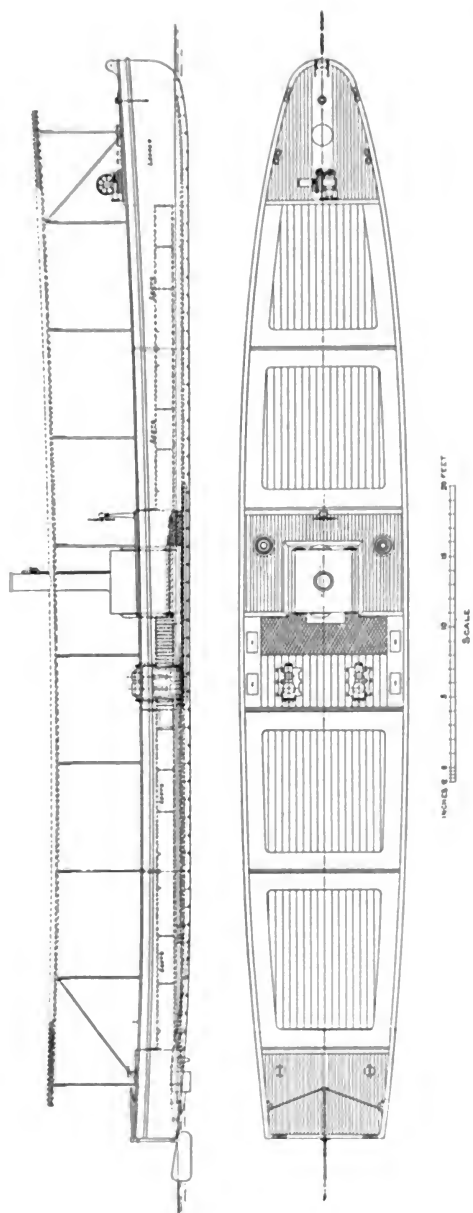


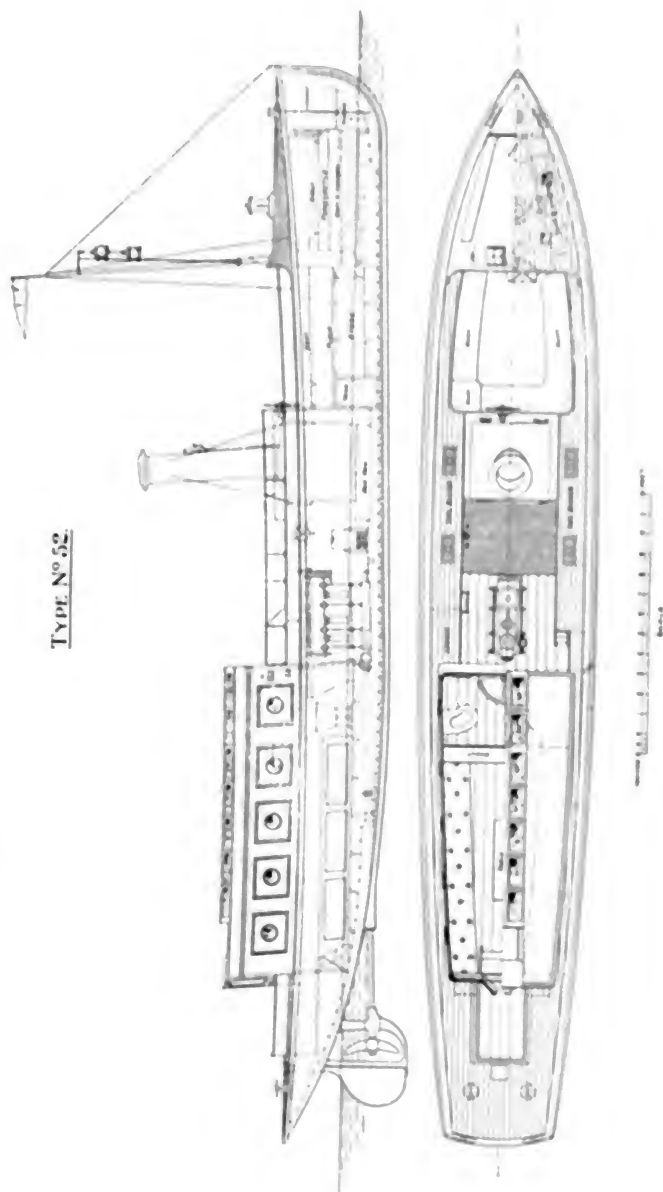


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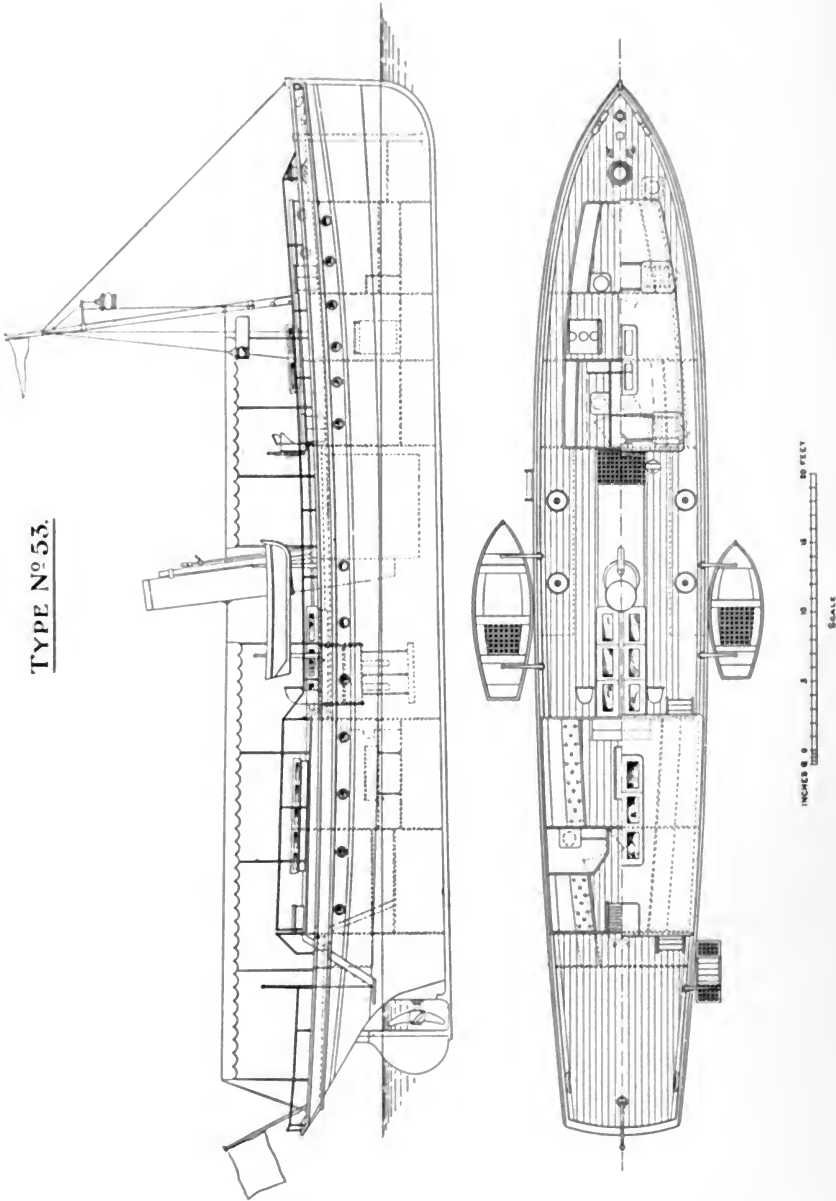


TYPE N<sup>o</sup> 51





TYPE N<sup>o</sup> 53.



### TYPE No. 52.

This is a launch which one of our partners has built for his own use on the coast for general work and occasional cruising. The boat is 54 ft. long by 8ft. beam, and this provides for sufficient room for a comfortable cabin aft, well forward, and forecastle. The machinery is triple expansion, 12in., and gives her a speed of 15 miles.

### TYPE No. 53.

Small yachts are hardly distinguishable from large launches, but the one illustrated is perhaps more of the former than the latter. It is difficult to point out any very special points in this design, and we give it principally as an example of a boat recently built. No doubt a purchaser would require the accommodation arranged to suit his ideas, and this could be done to any extent. The machinery shown is quadruple expansion, "L" size, and will give her a speed of 10 knots. This could be increased somewhat if a water tube boiler was used, and in this case it would not take quite so much space.

### PORTABLE, ELECTRIC LIGHT, PUMPING, OR OTHER MACHINERY.

For any special purpose where lightness is of *extreme* importance, we can build machinery in which the engines and boilers complete do not exceed  $\frac{1}{4}$  cwt. per horse power, the machinery in this case being generally similar to that employed in fast Launches, and not more complicated. If the machinery were to be driven by skilled attendants and cost was no object, this might even be very much reduced.



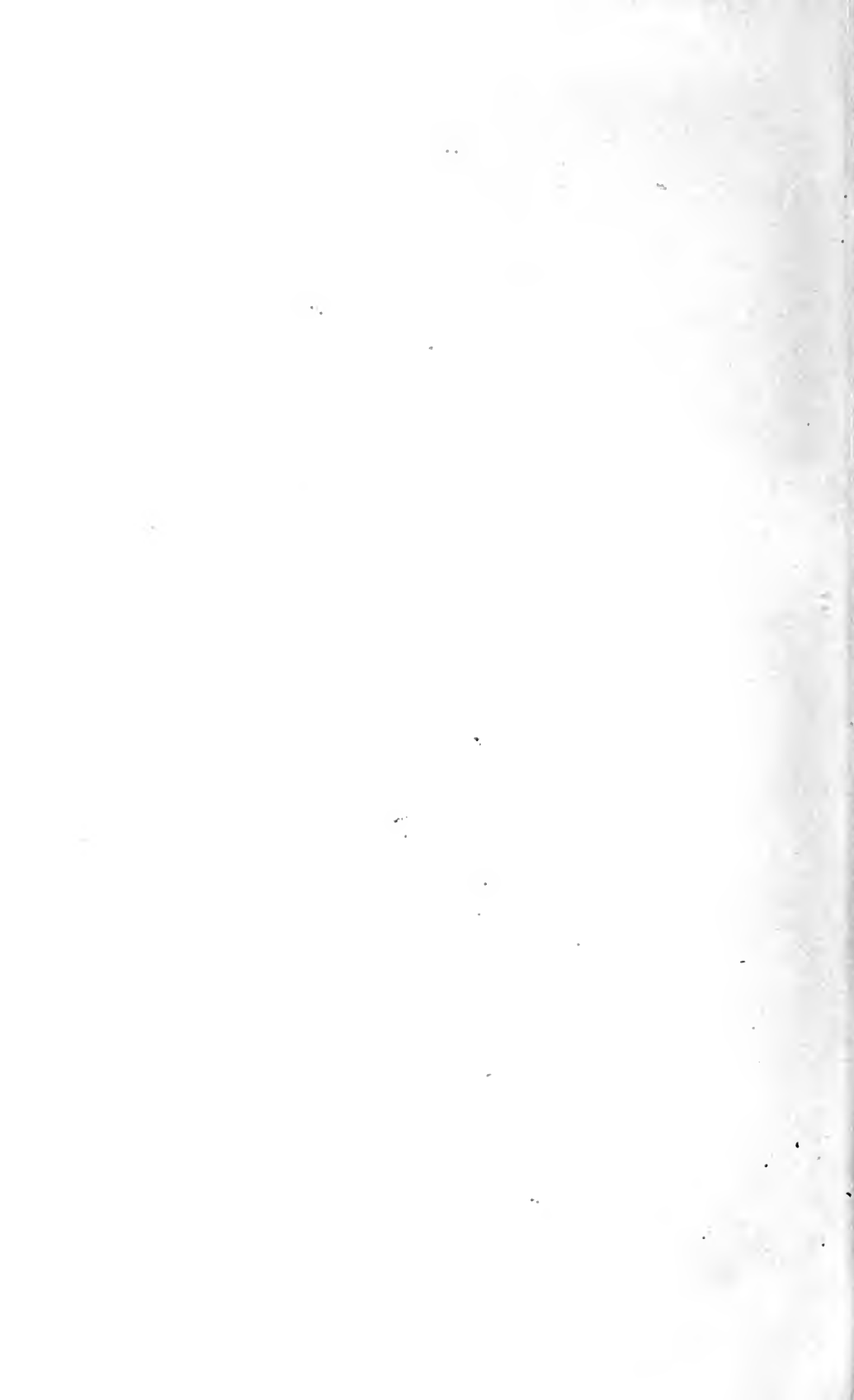
50ft. x 7ft., SPEED 12½ MILES.



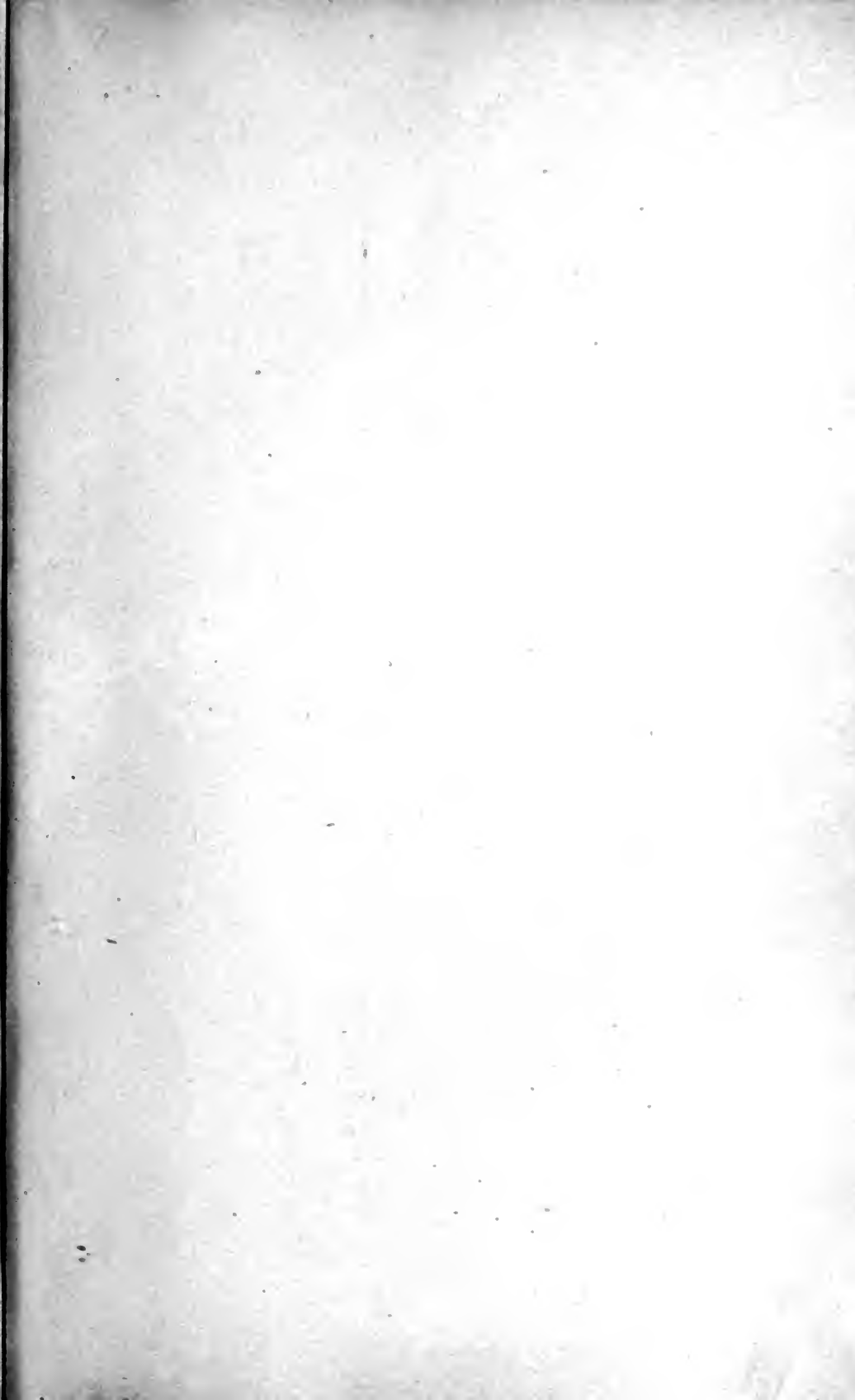
*Yacht 80' x 13' x 7' 4".*

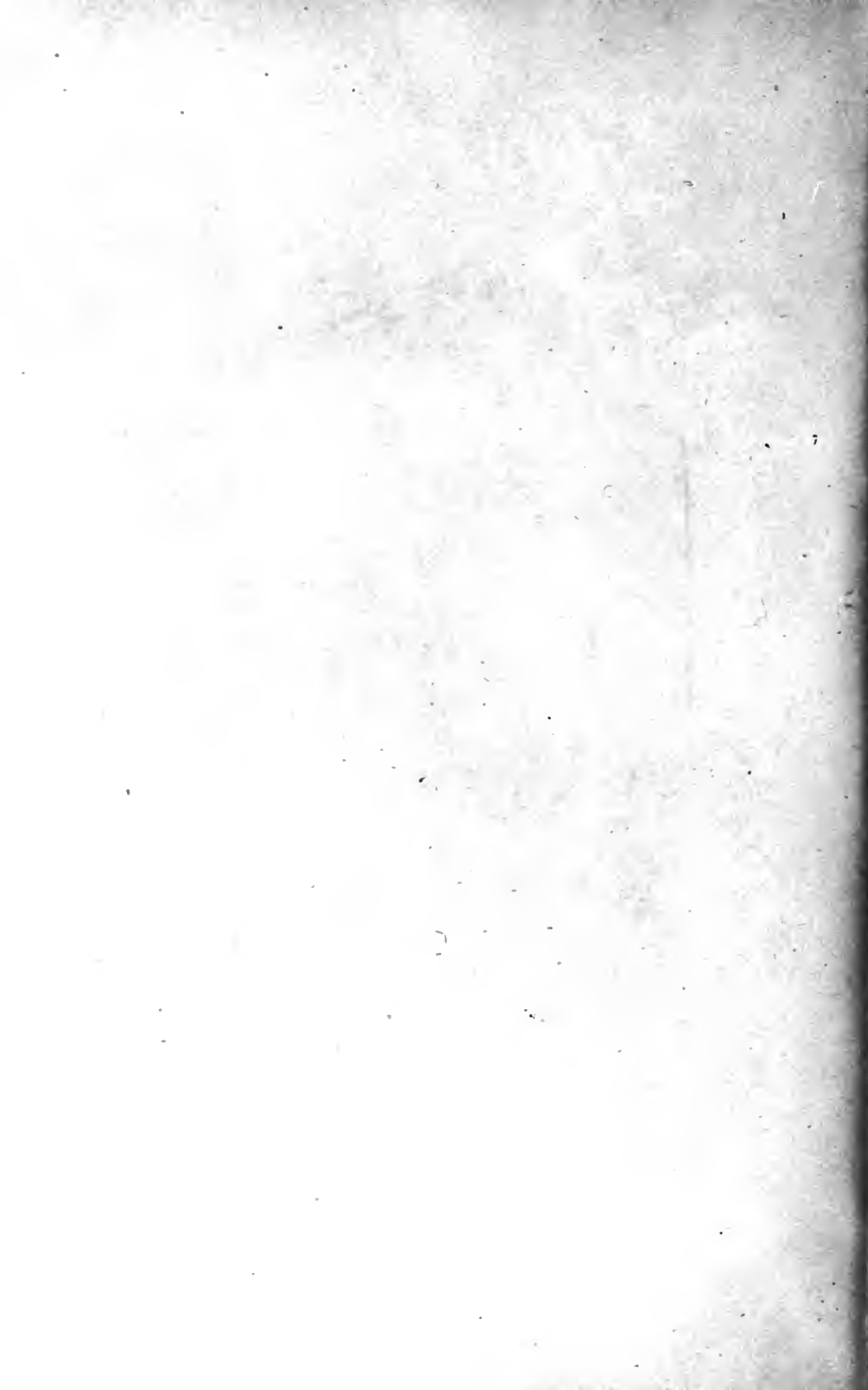


STEAM YACHT ST. ORAN 57 FT. 9 FT.









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